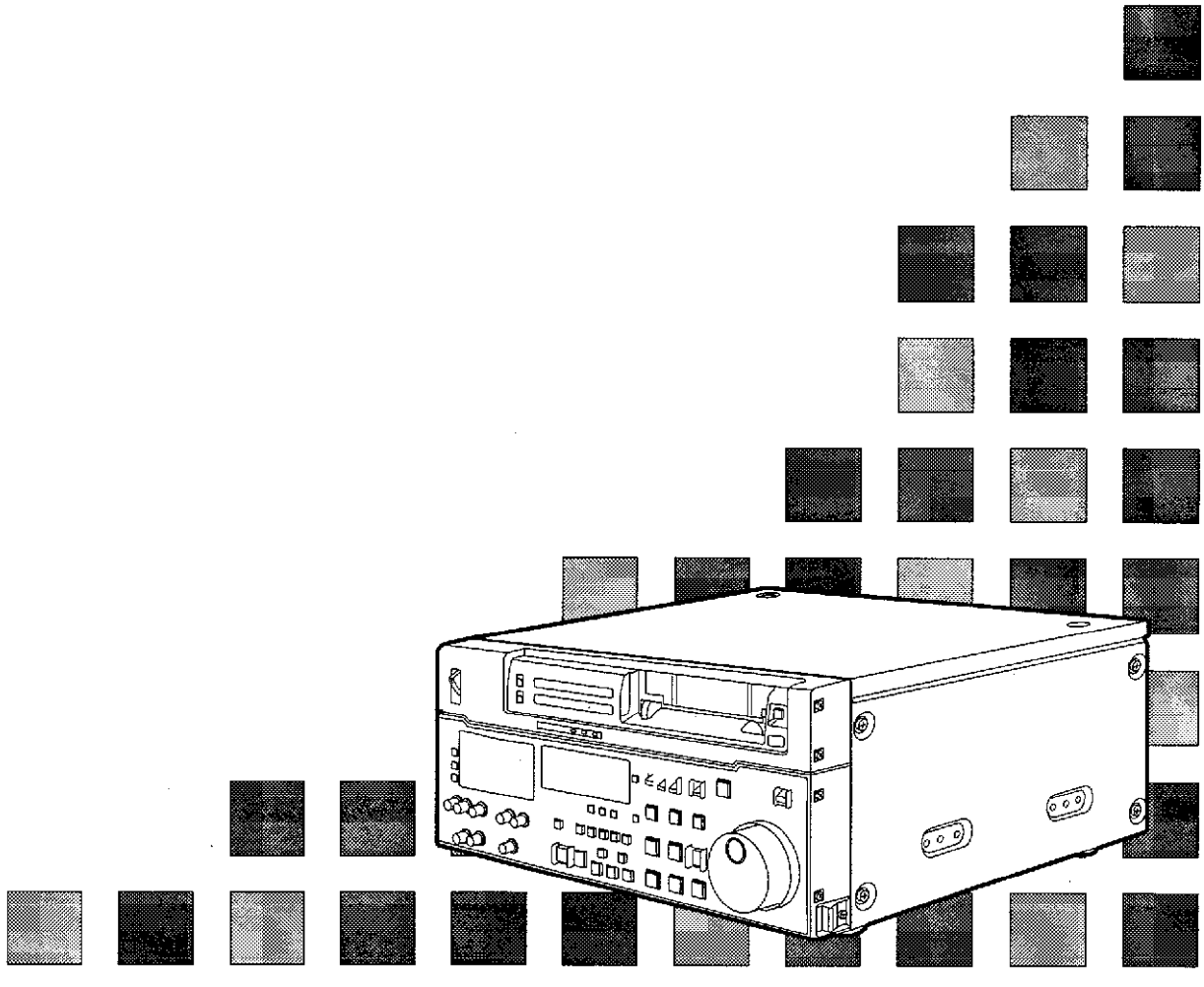
Panasonic

DVCPRO
DIGITAL VIDEO CASSETTE

Digital Video Cassette Recorder

AJ-D750P

Operating Instructions



IMPORTANT

"Unauthorized recording of copyrighted television programs, video tapes and other materials may infringe the right of copyright owners and be contrary to copyright laws."

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CAUTION:
To reduce the risk of fire or shock hazard and annoying interference, use the recommended accessories only.

WARNING:
To reduce the risk of fire or shock hazard, do not expose this equipment to rain or moisture.

CAUTION:
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, REFER MOUNTING OF THE OPTIONAL INTERFACE BOARD TO AUTHORIZED SERVICE PERSONNEL.

FCC Note:
This device complies with Part 15 of the FCC Rules. To assure continued compliance follow the attached installation instructions and do not make any unauthorized modifications.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

☐ is the safety information.

- Do not insert fingers or any objects into the video cassette holder.
- Avoid operating or leaving the unit near strong magnetic fields. Be especially careful of large audio speakers.
- Avoid operating or storing the unit in an excessively hot, cold, or damp environment as this may result in damage both to the recorder and to the tape.
- Do not spray any cleaner or wax directly on the unit.
- If the unit is not going to be used for a length of time, protect it from dirt and dust.
- Do not leave a cassette in the recorder when not in use.
- Do not block the ventilation slots of the unit.
- Use this unit horizontally and do not place anything on the top panel.
- Cassette tape can be used only for one-side, one direction recording. Two-way or two-track recordings cannot be made.
- Cassette tape can be used for either Color or Black & White recording.
- Do not attempt to disassemble the recorder. There are no user serviceable parts inside.
- If any liquid spills inside the recorder, have the recorder examined for possible damage.
- Refer any needed servicing to authorized service personnel.

Contents

General and Features 4
Controls and their functions 6
• Front panel 7
• Front panel bottom section 14
• Connector area 16
Connections
• Connections when one unit is used 19
• Connections when 2 units are used 20
• Connections with editing controller 21
• Connections for adjusting video output (encoder output) signals 22
Tapes 23
Switching on the power/inserting the cassette 24
STOP/STAND BY mode 25
Recording 26
Playback 27
Jog/shuttle 28
Manual editing 29
Preroll 30
Automatic editing 31
• Switch settings and adjustments 32
• Selecting the editing mode 33
• Entering the edit points 34
• Checking the edit points 35
• Modifying the edit points 36
• Preview 37
• Executing automatic editing 38
• Review 39
• Split editing 40
Video output (encoder output) signal adjustment 41
Setup (default settings) 42
Setup menus 43
• System menu 44
• Basic menu 45
• Operation menu 47
• Interface menu 48
• Edit menu 49
• Tape protect menu 51
• Time Code menu 52
• Video menu 54
• Audio menu 55
Time code/user bit 58
• Recording internal/external time codes 59
• Reproducing the time code/user bit 60
Superimpose screen 61
Servo reference 62
Audio V Fade Function 64
Printed circuit board 65
Rack mounting 66
Connector signals 67
Head cleaning 69
Condensation 69
Specifications 70

Before operating this unit, check that all of its accessories are present and accounted for.

Power cord...1 pc

Option

- AJ-YA750P component serial interface board
- AJ-CS750P Cassette adaptor
- AJ-MA34HP Rack mounting adaptor

This unit is a digital video cassette recorder which uses 1/4-inch tapes.
It incorporates digital compression technology so that the deterioration in picture quality and sound quality resulting from dubbing is significantly minimized compared with existing analog systems.
Furthermore, since it has a compact 4U size and light weight, the unit can be carried around or mounted in a 19-inch rack with ease.
The settings for the units setup can be performed interactively while viewing the screen menus on the TV monitor, and editing functions include both assemble and insert editing.

Features

Compact size and light weight

This is a 4U size digital VTR. It can be mounted in a 19-inch rack with ease using the optional rack-mounting adaptors (AJ-MA34HP).

Up to 123 minutes of recording

Two sizes of cassette tapes can be used with this unit: the news-gathering cassette (max. 63 minutes) and general purpose cassette (max. 123 minutes). The width of the tapes measures 1/4 inch to achieve a compact design.

Compatibility with consumer products

Consumer cassette tapes shot with digital cameras available on the consumer market can be played back on this unit using the optional cassette adaptor (AJ-CS750P).
<Note>
Slow playback of consumer cassette tapes will not produce the smooth operation produced by slow playback of DVCPRO cassette tapes.

Digital slow motion/jog

Digital slow-motion technology created originally by Panasonic enables noiseless images to be played back from speeds ranging from still picture to approx. ±1/2 × normal tape speed.
<Note>
Some noise may occur when the slow motion speed is changed.

Time codes

This unit comes with a built-in time code generator (TCG)/time code reader (TCR). In addition to the internal time code, time code facilities include external time code input as well as recording of the input signal VITC code.

Multi-function input/output interfaces

• Analog input/output
Component (Y, P_B, P_R) and composite signal input and output connectors are provided.
• Serial digital input/output
Digital component interfacing complying with the SMPTE 259M-C/272M serial digital signal standard is possible when the optional component serial interface board (AJ-YA750P) is used.
• AES/EBU audio input/output
Digital audio input and output connectors are provided.
• 9-pin (RS-422A)/(RS232C) remote
In addition to the standard 9-pin serial (RS-422A) connector, RS-232C and 25-pin parallel connectors are also featured.
The RS-422A connector enables another VTR to be operated in parallel with the unit if a looping connection is used for the two units.

2-channel high-sound-quality digital audio

Sound can be edited separately for two channels while channel mixing capabilities are also available. One channel is provided for the analog cue track.

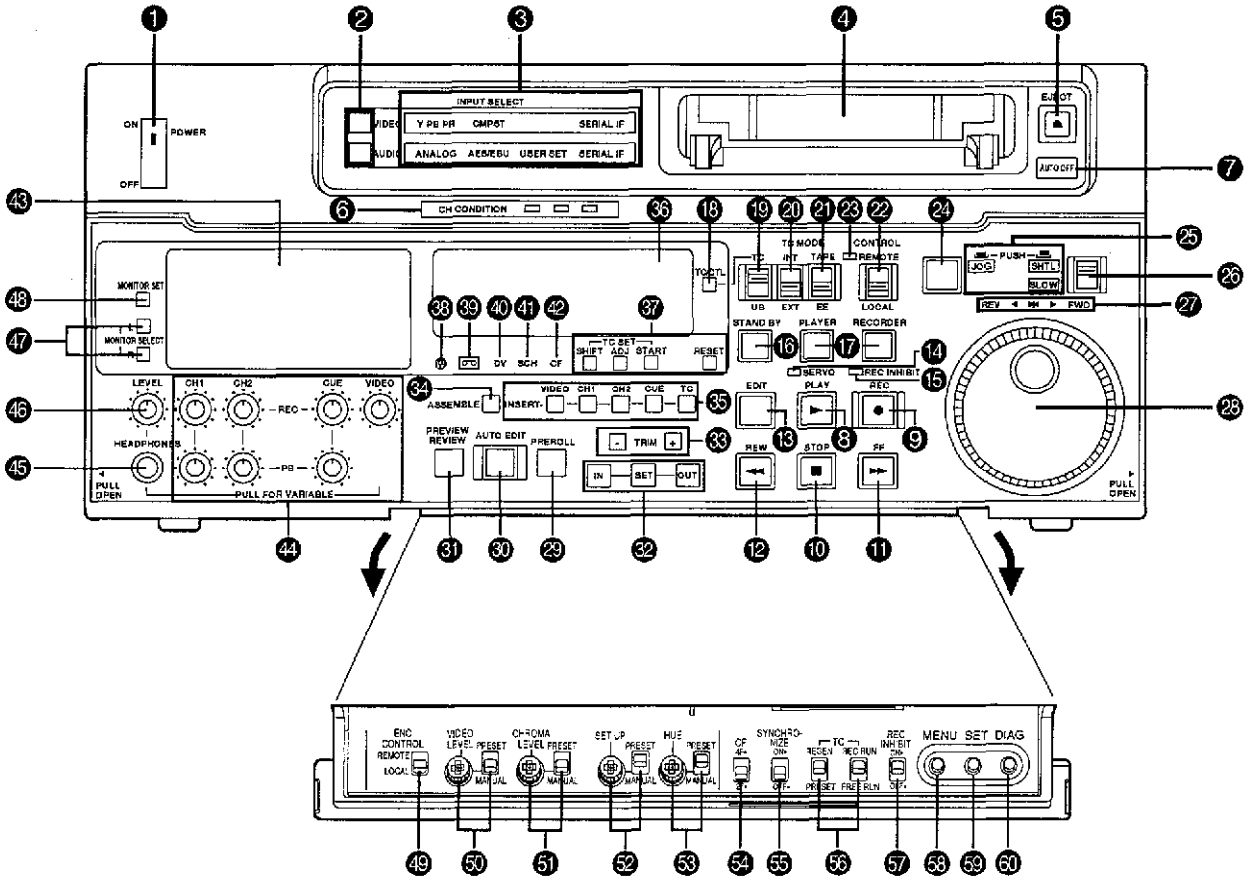
Features
(continued)

Dial jog/shuttle
All playback is free of noise bars with jog operations performed when the variable range is set to between –0.43 and 1 × normal tape speed. Shuttle operations can be performed up to 60X normal tape speed in both forward and reverse directions. Color images are well-defined even during high-speed searches.

Automatic editing functions
Besides assembly and insert editing, can also be performed.

Menu-driven setup
The setup settings, which are conducted prior to operating the unit, are performed while viewing the screen menus either on the unit's display or a TV monitor.

Front panel


POWER
ON
OFF
INPUT SELECT
VIDEO
Y PB PR
COMPST
SERIAL IF
AUDIO
ANALOG
AES/EBU
USER SET
SERIAL IF
EJECT
AUTO OFF
CH CONDITION
TC/UB
TC
UB
EXT
BE
LOCAL
TC MODE
INT
TAPE
CONTROL
REMOTE
JOG
PUSH
SHTL
SLOW
REV
FWD
STAND BY
PLAYER
RECORDER
SERVO
REC INHIBIT
MONITOR SET
MONITOR SELECT
TC SET
SHIFT
ADJ
START
RESET
DV
SCH
CF
LEVEL
CH1
CH2
CUE
VIDEO
REC
PB
HEADPHONES
PULL OPEN
PULL FOR VARIABLE
ASSEMBLE
INSERT
PREVIEW REVIEW
AUTO EDIT
PREROLL
TRIM
IN
SET
OUT
EDIT
PLAY
REC
REW
STOP
FF
ENC CONTROL
REMOTE
LOCAL
VIDEO LEVEL
PRESET
MANUAL
CHROMA LEVEL
SET UP
HUE
CF AFT
SYNCHRO-MIZE
REGEN
REC RUN
REC INHIBIT
MENU SET DIAG

<Front Panel Top Section>

❶ POWER switch

When the ON side is pressed, the power is switched on, and the audio level and video level meters, counter display and INPUT SELECT display light up.

❷ INPUT SELECT switches

These are used to select the video and audio input signals.

<Video>

Each time the VIDEO button is pressed, the input video signal selection is switched in the order of Y P_B P_R, COMPOSITE, SERIAL IF and back to Y P_B P_R.

<Audio>

Each time the AUDIO button is pressed, the input audio signal selection is switched in the order of ANALOG, AES/EBU, USER SET, SERIAL IF and back to ANALOG.

USER SET is a function for selecting two different input signals to be recorded on PCM audio signal CH1 and CH2, and it is used in tandem with the on-screen menu.

For instance, if USER SET is selected by INPUT SELECT and CH1=ANALOG, and CH2=DIGI are selected on the on-screen menu, the analog input signal and digital input signal (AES/EBU and SERIAL IF) will be respectively recorded on channels 1 and 2 of the PCM audio signals recorded on the tape.

❸ INPUT SELECT display

The characters corresponding to the selected input signal light.

<Video>

Y PB PR: Analog component video signal
CMPSIT: Analog composite video signal
SERIAL IF: Serial component digital video signal (SMPTE 259M-C/272M) (option)

<Audio>

ANALOG: Analog audio signal
AES/EBU: Digital audio signal
USER SET: Selection of audio signal to be recorded
SERIAL IF: Serial digital audio signal (SMPTE 259M-C/272M) (option)

❹ Cassette insertion slot

The news-gathering cassette, general-purpose cassette and consumer cassette with adaptor are inserted into this slot.

Consumer cassettes can be played back only.

❺ EJECT button

When this is pressed, the tape is unloaded and several seconds later the cassette is automatically ejected. When the counter display indicates " CTL ", the display is reset.

The lamp lights when the eject command is received.

❻ Channel condition lamps

One of these lamps lights in accordance with the error rate status. (Green→amber→red)

Green: This lights when the error rates for the video and audio playback signals are both acceptable.

Amber: This lights when the error rate for the video or audio playback signals has deteriorated.

Red: The playback picture will remain normal even when this lamp lights.
This lights when the video or audio signals are subject to rectification or interpolation.

❼ AUTO OFF lamp

This lights when trouble has arisen in the deck's operation.

<Front Panel Center Section>

❽ PLAY button

Playback commences when this button is pressed.

Recording commences when the button is pressed together with the REC button; manual editing commences when it is pressed together with the EDIT button during playback.

Pressing only the PLAY button during manual editing will cut out the editing and establish the playback mode.

❾ REC button

Recording commences when this button is pressed together with the PLAY button.

When it is pressed during playback, search*1), fast forward or rewind, EE mode images and audio signals can be monitored for as long as it is kept depressed.

When it is pressed in the stop mode, EE mode images and sound can be monitored.

When the STOP button is pressed, the original picture and sound are restored.

❿ STOP button

When this is pressed, the tape stops traveling, and if the TAPE/EE selector switch is at TAPE, still pictures can be monitored.

The drum continues to rotate even in the stop mode, and the tape remains in close contact with the drum.

If the stop mode continues for more than a certain period of time, the unit automatically switches to the standby OFF mode in order to protect the tape.

The stop mode is established immediately after a cassette has been inserted into the unit.

⓫ FF button*2)

The tape is fast forwarded when this is pressed.

⓬ REW button*2)

The tape is rewound when this is pressed.

⓭ EDIT button

For manual editing, press both this button and the PLAY button together during playback.

When the button is pressed in the stop mode, the input mode signals selected by the ASSEMBLE or INSERT button can be monitored in the EE mode.

The original picture and sound are restored when the STOP button is pressed.

When the button is pressed during playback, search*1), fast forward or rewind, the input signals can be monitored in the EE mode for as long as it is kept depressed.

⓮ SERVO lamp

This lights when the drum servo and capstan servo have locked.

⓯ REC INHIBIT lamp

This lights when the REC INHIBIT switch in the front panel bottom section is at ON or when the accidental erasure prevention mode has been set for the cassette.

In this state, neither recording nor editing is possible.

*1) No guarantee is made for the audio EE mode at tape speeds below the normal tape speed.

*2) The FF/REW speed can be selected on the setup menu NO. 102 (FF, REW MAX), and it is set to the same speed.

<Front Panel Center Section>

⑯ STAND BY button

When this is pressed, the same tension as in the regular stop mode is applied to the tape, and while the head drum continues to rotate, the button's lamp lights to indicate that the standby ON mode is established.

In the standby OFF mode, the half-loading mode is established.

When this button is pressed in the stop mode, the standby OFF mode is established, the half-loading mode is established. The lamp in the button now goes off. When the unit remains in the stop mode for longer than a predetermined period, the standby OFF mode is automatically established in order to protect the tape.

When this button or the STOP button is pressed in the standby OFF mode, the standby ON mode is established.

When a button other than the STOP button is pressed, the mode corresponding to the button pressed is established.

On-screen settings are available for the transfer time to the standby OFF mode.

⑰ PLAYER/RECORDER buttons

These buttons are operated when editing operations are conducted using the unit as the recorder and a VTR equipped with an RS-422A serial interface remote control connector (9 pins). Neither button functions when the unit is used on its own.

PLAYER button: When this button is pressed, its lamp lights, and the player connected to the unit can be operated by remote control. The unit's editing and tape transport buttons now control the player's functions.

RECORDER button: When this button is pressed, its lamp lights, and the editing and tape transport buttons control the recorder's (= the units) functions.

⑱ TC/CTL switch

By pressing this switch, what appears on the counter display is changed between TC and CTL.

When TC is selected, either the TC or UB value is displayed depending on the position selected by the TC/UB switch.

⑲ TC/UB switch

This selector switch determines whether the value of TC or UB appears on the counter display when the TC/CTL switch has been set to TC.

⑳ INT/EXT switch

INT: For using the built-in time code generator.

EXT: For using the time external code which is input from the time code input connector or the video signal VITC. The selection is set at the menu.

㉑ TAPE/EE switch

<In the stop mode>

TAPE: For outputting the signals played back from the tape.

EE: For outputting the input signals selected by the INPUT SELECT switch.

<In the editing*/recording mode>

TAPE: For outputting the simultaneous playback signals.

EE: For outputting the input signals selected by the INPUT SELECT switch.

* The SETUP menu No.308 (CONFI EDIT) setting is required.

<Front Panel Center Section>

㉒ REMOTE/LOCAL switch

This switch is set when the unit is to be controlled from an external source using the REMOTE connector, RS-232C connector or parallel connector.

REMOTE: Set to this position when controlling the unit by a device connected using the 9-pin REMOTE connector or RS-232C/parallel connector.

LOCAL: Set to this position when controlling the unit using the controls on its own operation panel.

㉓ REMOTE lamp

This lights when the REMOTE/LOCAL switch has been set to the REMOTE position.

㉔ Search button

This button is pressed to establish the search mode.

When the search dial is set to the shuttle mode and turned to a particular position, and this button is pressed, playback commences at the speed set by the search dial.

㉕ JOG/SHTL/SLOW lamps

These indicate the present status of the search dial and SHTL/SLOW switch.

JOG: This lights when the unit is in the JOG mode.

SHTL: This lights when the unit is in the SHTL mode.

SLOW: This lights when the unit is in the VAR (variable) mode.

㉖ SHTL/SLOW switch

This selector switch is set when the search dial is used for SHTL or SLOW applications.

㉗ REV/STILL/FWD lamps

One of these lamps lights depending on the operation of the search dial.

REV: This lights when the dial is turned counterclockwise and the tape travels in the REV direction provided that the lamp in the search button has lighted.

STILL: This lights in the JOG mode while the dial is kept stationary, and the tape stops traveling provided that the lamp in the search button has lighted.
It lights in the SHTL mode provided that the dial is at the STILL position.

FWD: This lights when the dial is turned clockwise, and the tape travels in the FWD direction provided that the lamp in the search button has lighted.

㉘ Search dial

This is used to search for the edit points.

Each time it is pressed, the mode is alternately set to shuttle or jog, and one of the JOG, SHTL and SLOW lamps lights. When the power has been turned on, the dial will not function until it has first returned to the STILL position.

Shuttle mode: When the dial is turned and stopped at a particular position while the SHTL/SLOW switch is at SHTL, the tape can be played back at the speed corresponding to the dial's rotary angle position. A still picture appears at the dial's center position.
When the dial is turned all the way counterclockwise with the SHTL/SLOW switch at SLOW, the tape speed is set to –4 × normal speed, when it is set to the center position, a still picture is produced, and when it is turned all the way clockwise, the tape speed is set to +4 × normal speed. The speed for SLOW can be set using set-up menu No. 300 (VAR RANGE).

Jog mode: The dial clickstops are cleared, and the tape is played back at the speed (–1/2 × to +1 × normal speed) corresponding to the speed at which the dial is turned.

<Front Panel Center Section>

㉙ PREROLL button

This is used for feeding and cueing the tape for manual editing.
When it is pressed, the tape travels to the preroll point where it stops.
The preroll time can be set on-screen.
When this button is pressed together with the IN or OUT button, the tape can be cued to the IN or OUT point entered.
When the AUDIO ENTRY on the setup menu No.311 is set to 1, IN point has been entered at the point where the PREROLL button is pressed even if the IN point has not been entered.

㉚ AUTO EDIT button

Automatic editing is executed when this is pressed after an edit point has been entered.
When the AUTO EDIT button is pressed though the IN point has not been entered, automatic editing is executed using the point at which the button was pressed as the IN point.

㉛ PREVIEW/REVIEW buttons

PREVIEW: When this is pressed after an edit point has been entered, the tape travels, editing is not performed, and the rehearsal can be activated on the screen connected to the recorder.
If it is pressed when the IN point has not been entered, the point at which the button was pressed is entered as the IN point, and preview is executed accordingly.

REVIEW: If this is pressed after a block has been edited, the now edited block can be played back and monitored on the screen connected to the recorder.

㉜ IN/SET/OUT buttons

When IN or OUT button is pressed together with the SET button, the IN or OUT point is entered.
While an IN or OUT point is being entered, the lamp in the IN or OUT button corresponding to the point being entered lights.
When this button is pressed after a point has been entered, the IN or OUT point value appears on the counter display. When the IN or OUT button is pressed together with the RESET button, the IN or OUT point entry is cleared.

㉝ TRIM buttons

These buttons are used to trim IN or OUT point finely.
When the "+" or "–" button is pressed while the IN or OUT button is held down, the entered edit point can be trimmed in 1-frame increments. When the "+" button is pressed, the tape is advanced by one frame; when the "–" button is pressed, it is rewound by one frame.

㉞ ASSEMBLE button

This is pressed for assemble editing.
The button is self-illuminating, and it is set ON (lamp lights) when it is pressed once and OFF (lamp goes off) when it is pressed again.

㉟ INSERT buttons

Press one of these five buttons to select the input signals to be edited during insert editing.
The buttons are self-illuminating, and they are set ON (lamp lights) when they are pressed once and OFF (lamp goes off) when they are pressed again.

㊱ Counter display

This displays the TC and CTL count values, on-screen information and other messages.

<Front Panel Center Section>

㊲ Time code buttons

These are used to set the TC or UB value.

SHIFT: When setting the TC or UB value, first press this button to stop the data running.
Change the digit now flashing on the display.
Each time the button is pressed, the flashing moves to the right by one digit, and when it reaches the right-most digit, it returns to the left-most digit.
When it is kept depressed, the flashing moves consecutively.

ADJ: This is used to change the numeral of the digit now flashing on the display.
When the button is pressed once, the number is incremented by 1, and when it is kept depressed, the number is incremented consecutively.

START: This enters the data which has been changed by the SHIFT and ADJ buttons.
Also, Pressing this button when the TC or UB value are not set enables the TCG or UBG setting values to be confirmed.

RESET: When this button is pressed in the CTL mode, the display is reset to "00:00:00:00". In the CTL mode, the entered edit points are cleared.
In the TCNB mode, the generator is reset when the button is pressed together with the SHIFT button.

㊳ Warning lamp

This lights to warn the operator of a particular item.

㊴ Cassette insertion display lamp

This lights when a cassette has been inserted into the unit.

㊵ Consumer cassette insertion display lamp

This lights when a cassette recorded on a consumer DV device has been inserted.

㊶ SCH lamp

This lights when the SCH of the external sync signal is within a specific range.

㊷ CF lamp

This lights when the color framing is locked.

㊸ Level meters

These indicate the PCM audio signal CH1/CH2, CUE track signal and video signal levels.
The audio signal indicates the input signal levels during recording and EE selection, and the output signal levels during playback.
The video signal indicates only the input signal levels.

㊹ Input/output level controls

These are used to adjust the recording and playback levels of the PCM audio signal CH1/CH2 and CUE track signals and the recording level of the composite video signals.
Each control located on the upper level is for adjusting the recording level, and each control located on the lower level is for adjusting the playback level.
These are "pull for variable" controls which means that they enable adjustment only when they have been pulled up. The signals levels are set to the unity value (preset value) when the controls have been pushed down.

㊺ Headphones jack

The sound being recorded, played back or edited can be monitored on stereo headphones when they are connected to this jack.

<Front Panel Center Section>

㊻ Volume control

This is used to adjust the headphones volume and the monitor output volume.

Whether the headphones output and monitor output volumes are to be linked or kept separate can be set on-screen menu. (Note that the headphones output volume is normally linked.)

When the volumes are kept separate, the monitor output is set to the unity value (preset value).

㊼ MONITOR SELECT switches

These are used to select the audio signals output to the monitor L/R channels.

Each time the “L” button is pressed, the signals output to the monitor L channel are selected in turn in the following order: CH1, CH2, CUE and back to CH1.

Each time the “R” button is pressed, the signals output to the monitor R channel are selected in turn in the following order: CH1, CH2, CUE and back to CH1.

The L or R lamp on the level meter display lights to indicate which signal is now being selected. (When MONI CH SEL is set to AUTO at the on-screen menu No. 713, the display may not match the monitor output.)

㊽ MONITOR SET button

This is used when outputting the MIX signal to the monitor L/R channels.

When the MONITOR SET and L or R buttons are pressed together, the CH1 and CH2 MIX signal can be output to the monitor L or R. When these buttons are pressed together again, MIX is released.

<Front Panel Bottom Section>

㊾ ENCODER CONTROL switch

This selects whether the adjustments to the video output signals are to be performed by the unit or by an external encoder/remote controller.

REMOTE: The adjustments to the video output signals are performed by the external encoder/remote controller.

LOCAL: The adjustments to the video output signals are performed by the unit.

㊿ VIDEO LEVEL control and switch

When the ENCODER CONTROL switch is at LOCAL, the video level can be adjusted.
When it is at PRESET, the video level is set to the unity value (0 dB).
When it is at MANUAL, the video level can be adjusted using this control.

51 CHROMA LEVEL control and switch

When the ENCODER CONTROL switch is at LOCAL, the chroma level can be adjusted. When it is at PRESET, the chroma level is set to the unity value (0 dB). When it is at MANUAL, the chroma level can be adjusted using this control.

52 SET UP control and switch (Composite output only variable.)

When the ENCODER CONTROL switch is at LOCAL, the setup level can be adjusted. When it is at PRESET, the setup level is set to the unity value (0 IRE). When it is at MANUAL, the setup level can be adjusted using this control.

53 HUE control and switch (Composite output only variable.)

When the ENCODER CONTROL switch is at LOCAL, the hue can be adjusted. When it is at PRESET, the hue is set to the unity value (0°). When it is at MANUAL, the hue can be adjusted using this control.

54 CF switch

This selects whether the playback framing is to be locked in 4-field increments or 2-field increments.

4F: The framing is locked in 4-field increments.

2F: The framing is locked in 2-field increments.

55 SYNCHRONIZE switch

This selects whether to provide phase synchronization between two decks.

ON: Phase synchronization is provided. Error-less editing can be performed.

OFF: Phase synchronization is not provided. The edit point will be off by several frames, but editing can be performed quickly.

56 TC generator switch

REGEN: When the REGEN/PRESET switch is at REGEN, the internal time code generator is synchronized with the time code which the time code reader read from the tape. Whether to set TC or UB to REGEN can be selected at the on-screen menu No. 503 (TCG REGEN).

PRESET: When the REGEN/PRESET switch is at PRESET, presetting is enabled by the controls on the operation panel or by remote control.

REC RUN: The time code runs only during recording when the RUN MODE switch has been set to REC. The time code runs constantly when the REGEN/PRESET switch is set to REGEN.

FREE RUN: The time code runs regardless of the operation mode as long as the power is being supplied when the RUN MODE switch has been set to FREE.

<Front Panel Bottom Section>

57 REC INHIBIT switch

This selects whether to enable or inhibit the recording on the cassette tape.

ON: The recording on the cassette tape is inhibited.
The REC INHIBIT lamp on the front panel now lights.

OFF: The recording on the cassette tape is enabled provided that the cassette's accidental erasure prevention mechanism has been set to the recording enable position.

58 MENU button

When this is pressed, the on-screen menu appears on the TV monitor using VIDEO OUT 3 connector, and the setup menu No. appears on the display.
When it is pressed again, the on-screen mode is exited and the original operating mode is restored.

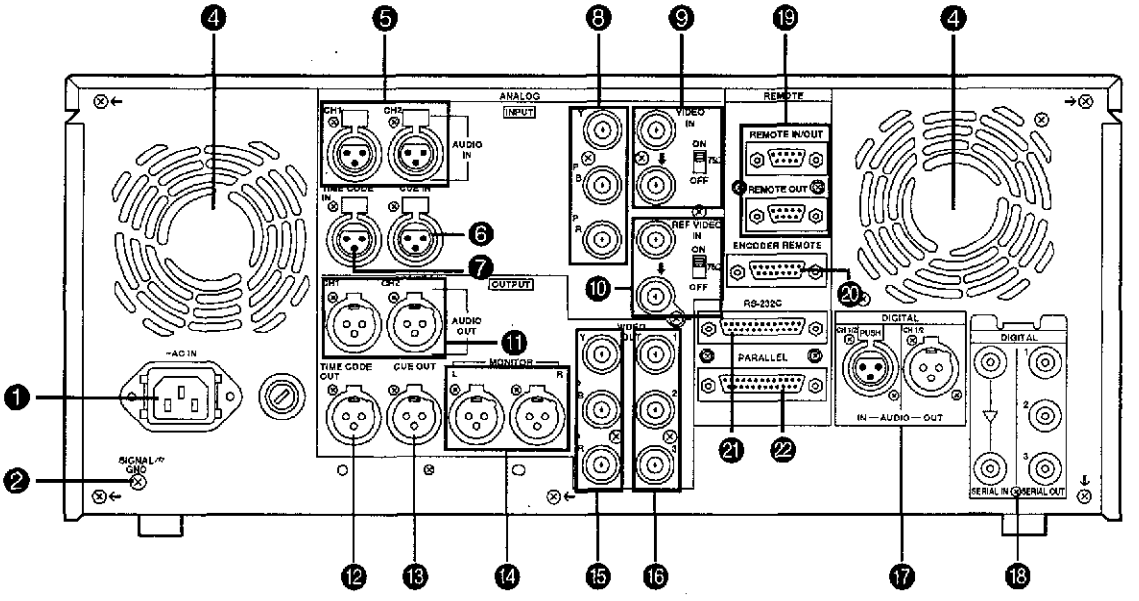
59 SET button

When this is pressed, the data which has been set on the on-screen menu is entered. After data entry, the on-screen mode is exited and the original operating mode is restored.

60 DIAG button

When this is pressed, VTR information is displayed. When it is pressed again, the original display is restored.
There are two types of VTR information: "HOURS METER" information and "WARNING" information. Switching between these types is enabled by pressing the search button.
Indicated on the "HOUR METER" screen are the power-on time, drum rotation time, tape travel time, loading count, etc.
Indicated on the "WARNING" screen are the warnings.

Connector area



<Connector area>

❶ AC IN connector
This is for connecting the unit to the power outlet using the power cord provided.

❷ SIGNAL GND terminal
This terminal is connected to the signal unit which is connected to the unit in order to reduce noise. It is not connected to ground for safety purposes.

❸ Fuse holder
This contains a 5A fuse.

❹ Fan motor
This is for cooling the unit.
The AUTO OFF lamp lights when trouble has caused the fan motor to stop. If the unit is still operated in the warning status, the temperature inside the deck will rise, and when it exceeds the safety temperature, all the units operations will be shut down.

❺ ANALOG AUDIO IN connectors
These are the analog audio input connectors.

❻ CUE IN connector
The analog signal to be recorded on the CUE track is supplied to this connector. The audio signals from a microphone can also be recorded by selecting the –60dB input mode on-screen.

❼ TIME CODE IN connector
This is the connector for recording the external time code on the tape.

❽ ANALOG COMPONENT VIDEO IN connector
The analog component video signal is supplied to this connector.

❾ ANALOG COMPOSITE VIDEO IN connectors and 75Ω termination switch
The analog composite video signal is supplied to these two connectors which are connected in a loop-through configuration. When the termination is required, set the switch to ON.

❿ REF VIDEO IN connectors and 75Ωtermination switch
These are the input connectors for the reference video signals. When the termination is required, set the switch to ON.

⓫ ANALOG AUDIO OUT connectors
The analog audio signals are output from these connectors.

⓬ TIME CODE OUT connector
The playback time code is output from this connector during playback.
During recording, the time code generated by the internal time code generator is output.

⓭ CUE OUT connector
The analog signal recorded on the CUE track is output from this connector.

⓮ MONITOR OUT connector
During playback, the playback signals from the CUE track or PCM audio signal CH1/CH2 are output from this connector.

<Connector area>

⓯ ANALOG COMPONENT VIDEO OUT connector
The analog component video signal is output from this connector.

⓰ ANALOG COMPOSITE VIDEO OUT connectors
The analog composite video signals are output from these connectors.
The video signal with signals superimposed on it can be output from the VIDEO OUT3 connector.
The superimpose function can be set ON or OFF on the setup menu No. 006 (SUPER).

⓱ DIGITAL AUDIO IN/OUT connector
This I/O connector is for digital audio signals which comply with the AES/EBU standard.

⓲ SERIAL DIGITAL COMPONENT AUDIO/VIDEO IN/OUT connector (optional AJ-YA750P interface board required)
This I/O connector is for digital component audio and video signals which comply with the SMPTE 259M-C/272M standard.

⓳ Remote control connectors
The unit can be controlled from an external source by connecting the unit with another unit or an external controller.
There are two remote control connectors, one for IN/OUT uses and the other for OUT uses.

IN/OUT: For connection with an external controller.
For connection with deck-to-deck operation.

OUT: For connection with parallel running operations.
For use in a loop-through configuration.

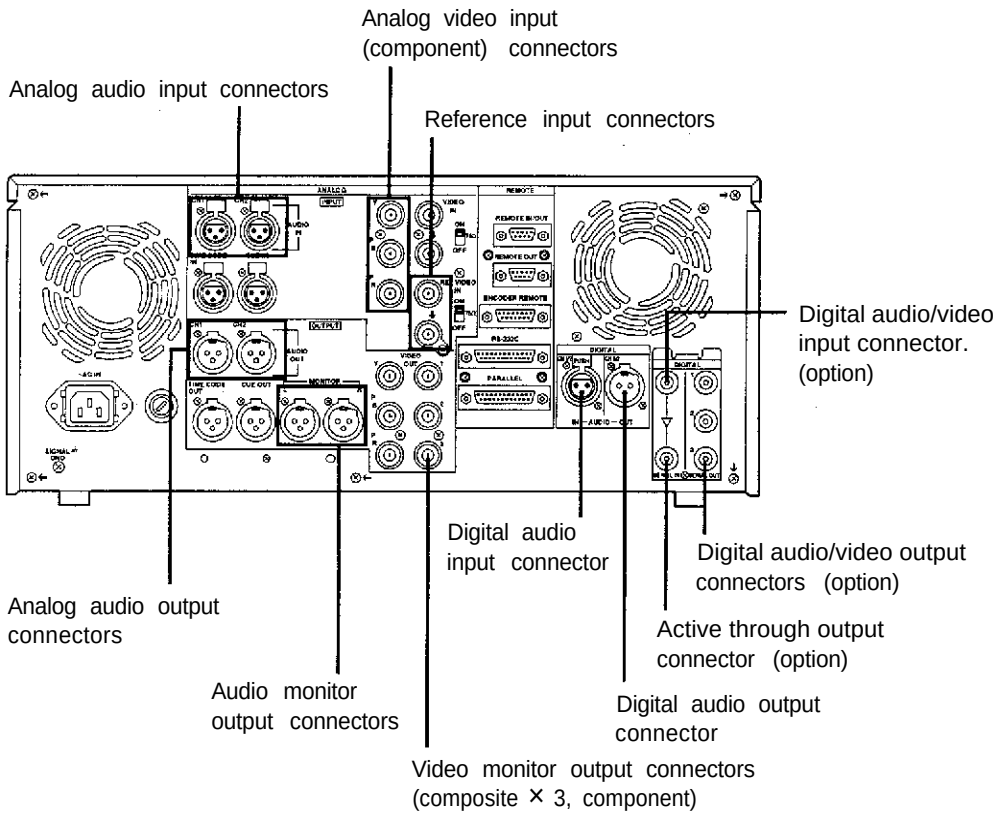
⓴ ENCODER REMOTE connector
The external encoder/controller is hooked up to this connector when the video output signal and other settings are to be adjusted from an external source.

㉑ RS-232C connector

㉒ PARALLEL REMOTE connector
This is used when operating the unit from an external source.

Connections when one unit is used

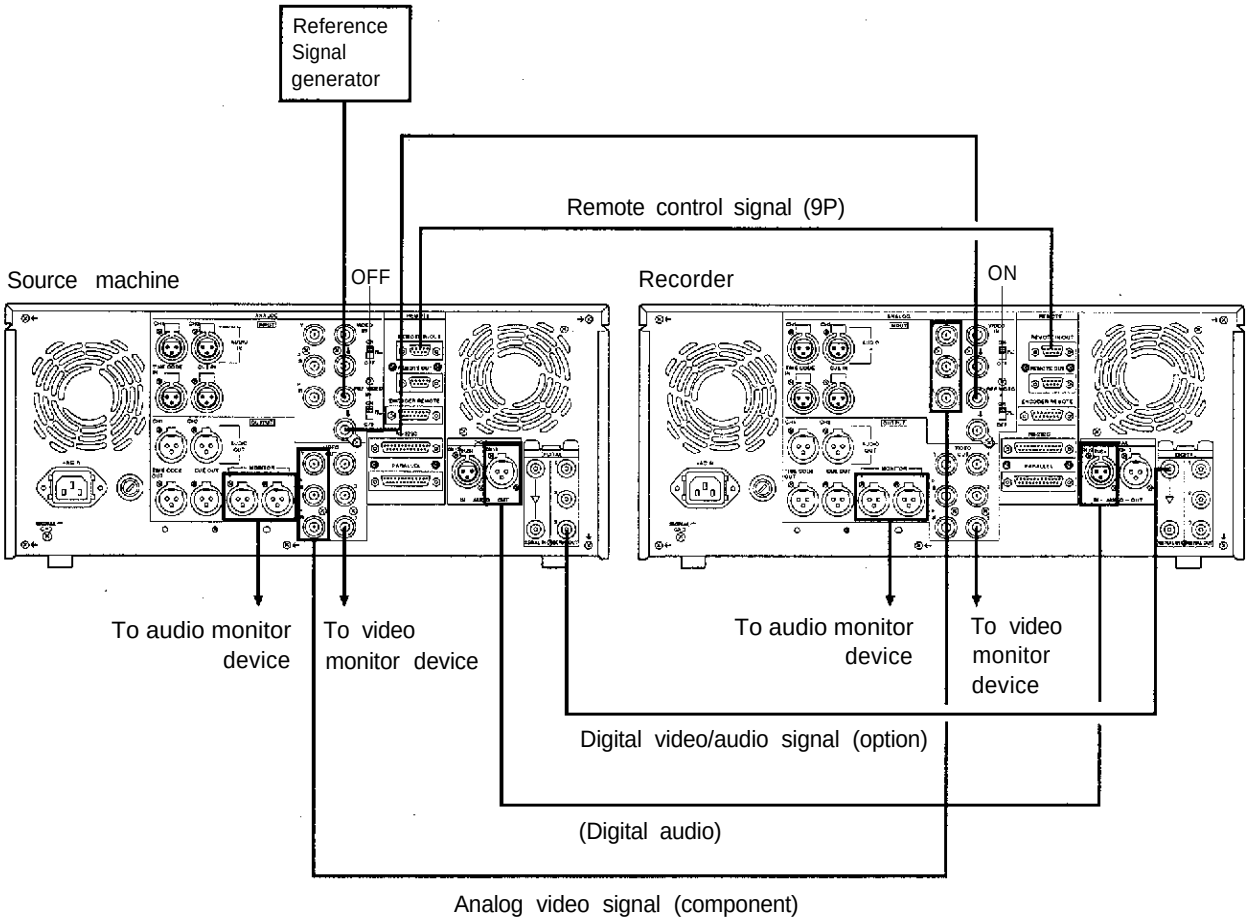
Set the CONTROL switch on the front panel to LOCAL.


Analog video input (component) connectors
Analog audio input connectors
Reference input connectors
Digital audio/video input connector. (option)
Digital audio input connector
Digital audio/video output connectors (option)
Analog audio output connectors
Active through output connector (option)
Audio monitor output connectors
Digital audio output connector
Video monitor output connectors (composite × 3, component)

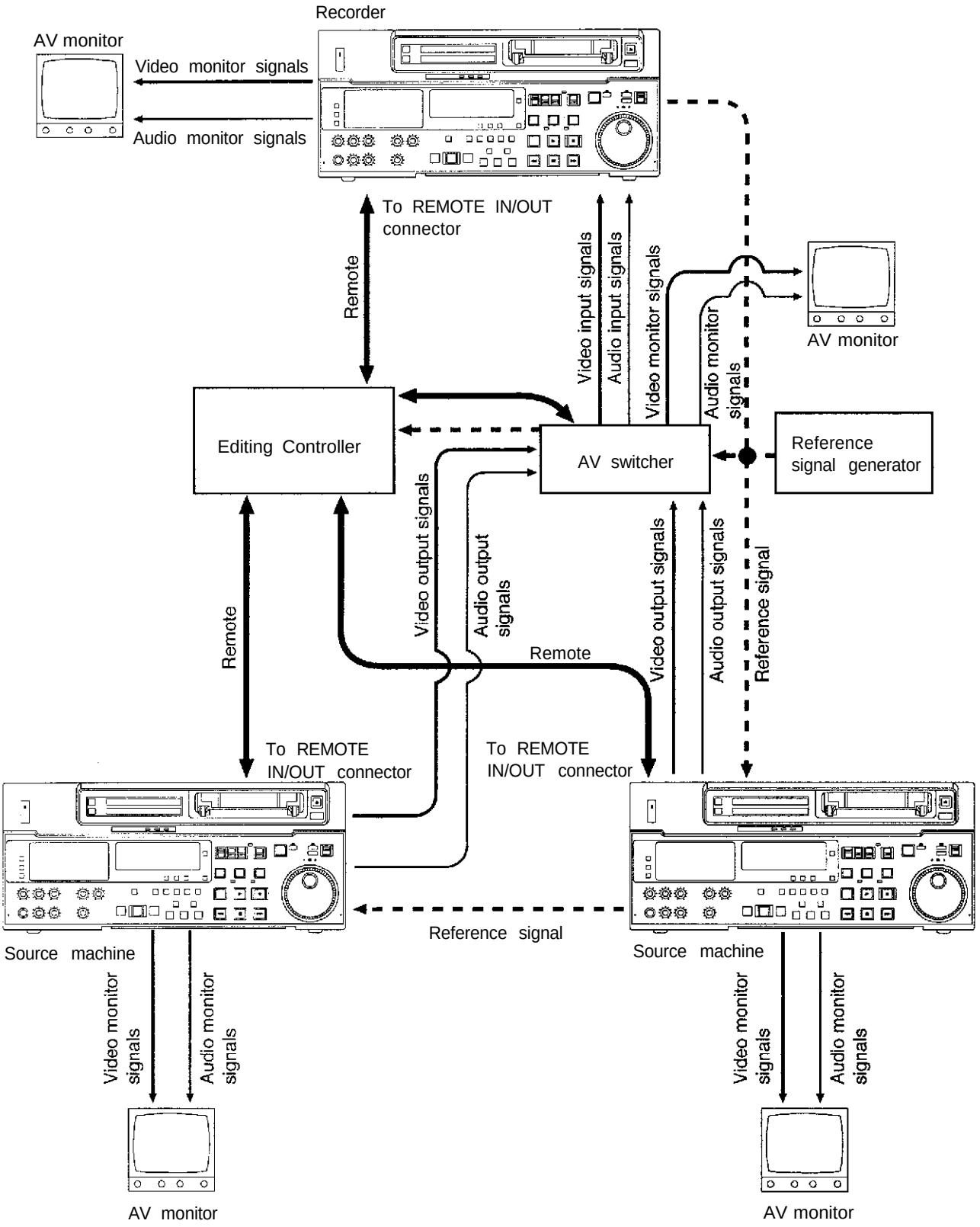
Connections when 2 units are used (deck to deck)

Source machine: • Set the CONTROL switch on the front panel to REMOTE.

Recorder: • Set the CONTROL switch on the front panel to LOCAL.

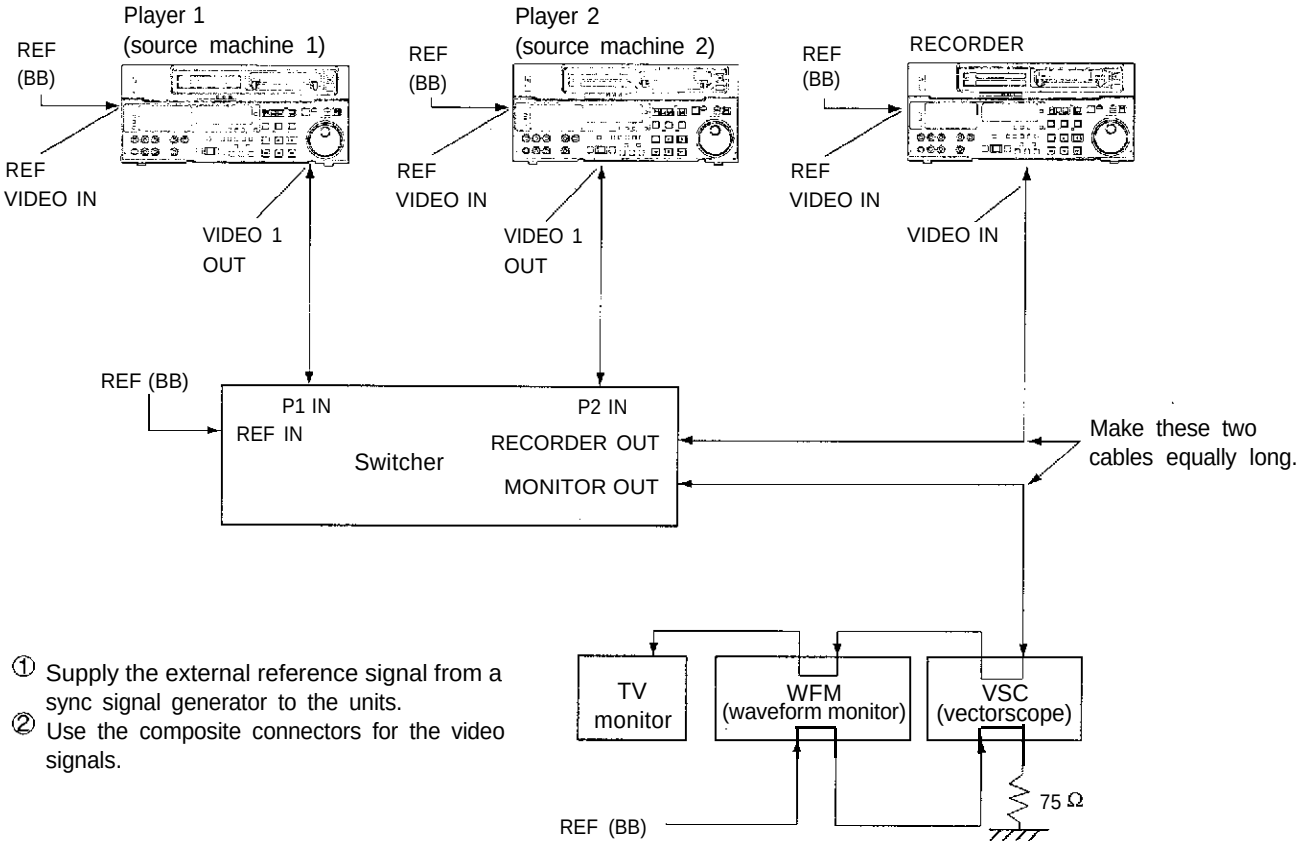


Connections with editing controller



<Note>
When an editing controller made by CMX is used, support must be provided at the editing controller side.

Connections for adjusting video output (encoder output) signals



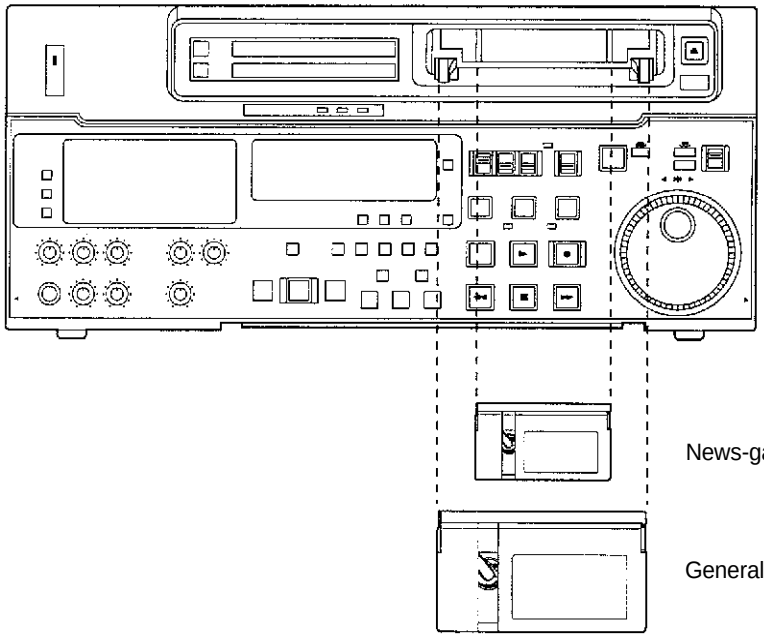
① Supply the external reference signal from a sync signal generator to the units.
② Use the composite connectors for the video signals.

Tapes

Three types of tapes can be used with the unit.

Type	Description
Consumer cassette	Tape designed exclusively for the camcorders used by consumers in general. Only playback is possible using the optional cassette adaptor.
News-gathering cassette	Recording/playback tape with a maximum capacity of 63 minutes. (AJ-P6MP, AJ-P12MP, AJ-P23MP, AJ-P33MP, AJ-P63MP)
General purpose cassette	Recording/playback tape with a maximum capacity of 123 minutes. (AJ-P64LP, AJ-94LP, AJ-P123LP)

Align the cassette with the center of the insertion slot and push it in gently. The cassette tape is loaded automatically.



<Notes for playback of consumer DV cassette tape>

- Consumer tapes are for playback only, they cannot be recorded upon by the AJ-D750.
- Material recorded on consumer tape must be played back and edited to another professional VTR.
- The AJ-D750's recording functions, recording, edit mode, Tape/EE and others will not function when Consumer tape is inserted in the VTR.
- Consumer tape FF/REW speed is VTR limited to ±32X. Slow motion playback of consumer format tapes may not be perfect.
- Maximum Still Timer is 10 seconds for consumer tape.
- In order to protect the tape, the maximum STILL TIMER for consumer tape is 10 seconds, STOP mode is engaged after a maximum of 1 minute.

Switching on the power/inserting the cassette

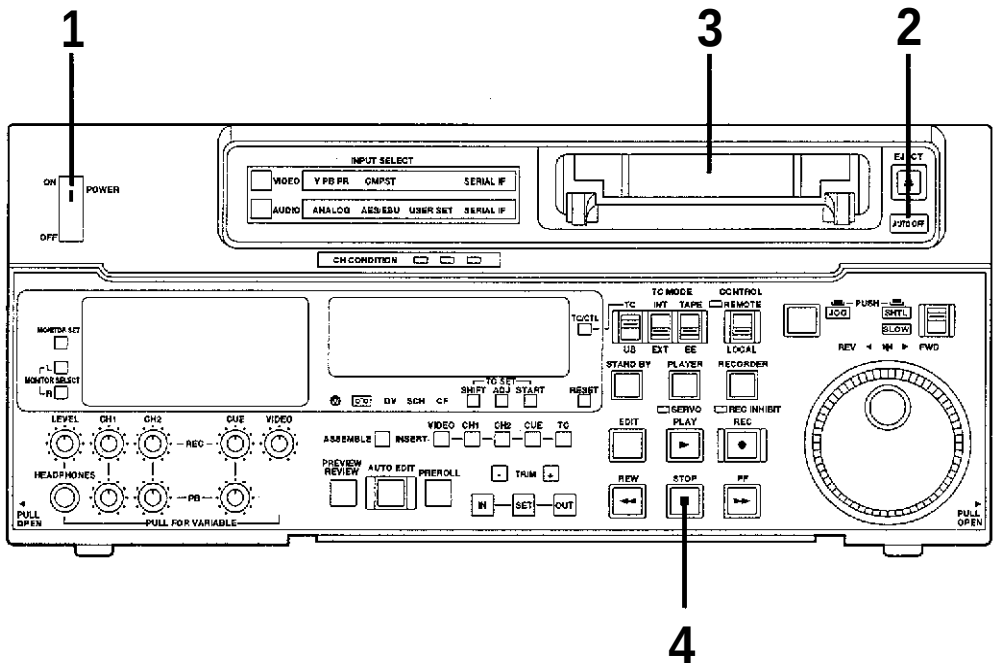
Before starting to operate the unit, check whether the equipment has been connected properly.

1 Turn on the power.

2 Check that the AUTO OFF lamp is off.
When condensation has formed or some other trouble has occurred, the AUTO OFF lamp lights, and all operations are disabled.

3 Insert the cassette tape.
Insert the tape at its proper position without force.

4 Check that the STOP lamp is on.
When the tape is inserted, the cylinder rotates automatically, the tape is loaded and the unit goes into the stop mode. The EJECT lamp goes off.



STOP/STAND BY mode

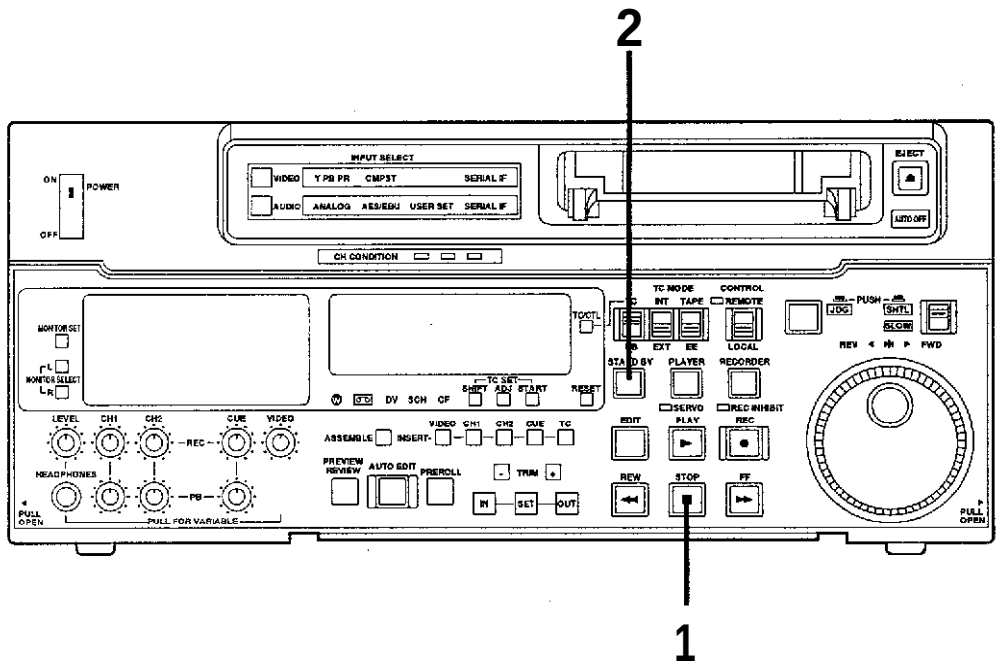
1 When the STOP button is pressed, the unit goes into the stop mode. The STOP lamp lights and the tape stops traveling.

- In order to protect the tape, the unit goes into the standby OFF mode after the time set by setting menu No.400 (STILL TIMER) has elapsed. When the STOP, REW, FF or PLAY button is pressed, the unit will go into the appropriate mode.

2 When the STAND BY button is pressed, the unit goes into the standby ON/OFF mode. When the button's lamp is lighted, the unit is in the standby ON mode.
When the button is pressed during the stop mode, the unit goes into the standby OFF mode and half-loading mode and the lamp goes off.
When the button is pressed during the standby OFF mode, the unit goes to the standby ON mode.

Still Timer Setting

In order to protect the tape and VTR helical heads, it is recommended that the Still Timer be set for automatic tape protection mode in 30 seconds or under.
Page 51 indicates the settings for menu item 400-Still Timer set. Still Timer settings 4 and below will best protect the tape.



1 Set the accidental erasure prevention tab on the cassette tape to the “recording” position and insert the tape.

2 Press the STOP button to place the unit in the stop mode.

3 Set the MODE switch to EE.
EE images now appear on the TV monitor.

4 Check that the REC INHIBIT lamp is off.
If this lamp is lighted, set the REC INHIBIT switch to OFF.

5 Select the video and audio input signals and adjust their levels.

5-1 Selecting video/audio input signals

1 Connect the signals to be recorded.

2 Select the input signals using the INPUT SELECT switches on the front panel.
The input signals corresponding to the lighted lamps have been selected.

5-2 Adjusting the video level

1 Keep the VIDEO LEVEL PRESET/MANUAL switch ㊿ set to “PRESET” (unity value).

2 To adjust the recording level, set the VIDEO LEVEL PRESET/MANUAL switch to “MANUAL” and adjust the level to a position between +3dB and –3dB with the control.

5-3 Adjusting the audio level

1 Adjust the audio input signal levels of the analog audio CH1/CH2 signals and analog cue signal. Keep the audio input/output level controls ㊹ pushed in (unity value).

2 The audio signals will be recorded at the proper level.
To adjust the recording level, pull out the controls and adjust them. With the CUE signal, adjust the control in such a way that –20dB will not be exceeded.

6 Press the PLAY button while holding down the REC button. The REC and PLAY lamps light, and recording commences.

7 To end the recording, press the STOP button.
Recording is ended, and the unit goes into the stop mode.

<Notes>

- Check that the SERVO lamp is lighted during recording. If it flashes or if it is off, the images played back will be disturbed.
- Only the analog composite video input signals can be adjusted. (The digital video and analog component input signals cannot be adjusted.)
- The sound and pictures to be recorded are offset from the playback pictures by at least 5 frames and recorded. When, for instance, recording sound at a particular timing while the playback pictures are monitored, the sound to be recorded will be recorded at a position which is offset from the playback pictures by 5 frames.

1 Insert the cassette tape, and place the unit in the stop mode.

2 Press the PLAY button.
Regular playback is now commenced.

3 Adjust the audio playback level.
Pull out the audio level controls and turn them clockwise or counterclockwise to adjust the levels. Normally, they are kept in the pushed-in state (unity value).

4 To end playback, press the STOP button.
The VTR now goes into the stop mode.

<Note>

- Check that the SERVO lamp is lighted during playback. If it flashes or if it is off, the images played back will be disturbed.

Jog/shuttle modes

Jog mode

1 Push the search dial to the “in” position.
Be sure that the JOG lamp lights.

2 Rotate the search dial.
The dial’s clickstops are cleared, and the tape is played back at the speed (–0.43 × to +1 × normal speed) corresponding to the speed at which the dial is turned. When the dial rotation is stopped, a still picture appears. The playback picture is noise-free.

3 To transfer from the jog mode to another mode, press the appropriate button.

Shuttle mode

1 Push the search dial to release it from the “in” position. The SHTL lamp lights, and the unit goes into the shuttle mode. Immediately after the power has been turned on, rotate the search dial and set it to the center position.

2 Set the SHTL/SLOW switch to SHTL or SLOW.

3 Rotate the search dial.
When the SHTL/SLOW switch has been set to SHTL, the playback picture speed is varied from 0 to ±60 × normal speed depending on the position of the dial. The playback picture speed can be switched to ±16 ×, ±32 × and ±60 × normal speed with setting menu No. 101 (SHTL MAX).
The dial’s center position is a clickstop where a still picture appears as the playback image. When the SHTL/SLOW switch has been set to SLOW, the playback picture speed is varied from –4 to +4 × normal speed depending on the position of the dial. The playback picture speed can be switched from –0.43 to 1 × normal speed with setting menu No. 300 (VAR RANGE). However, noise appears at speeds other than –0.43 to +1 × normal speed.
The dial’s center position is a clickstop where a still picture appears as the playback image. The playback picture is noise-free.

4 To transfer from the shuttle mode to another mode, press the STOP button or other button.

<Notes>

- When the unit leaves the factory, its operation is set up so that it will be transferred to the shuttle or jog mode when the search dial is rotated. If it is inconvenient for operation to be transferred to the variable-speed mode directly, it can also be transferred through the search button.
  Set setting menu No.100 (SEARCH ENA) to DIAL(C).

Manual editing

1 Select the editing mode.
ASSEMBLE: For assemble editing.
INSERT: For insert editing.

2 Select the editing channel.
In the case of insert editing, press the channel button corresponding to the signals to be edited, and check that its lamp is on.

3 Press the PLAY button.

4 Search for the position where the editing is to be commenced (IN point) while viewing the TV monitor, and press the PLAY and EDIT buttons together at the IN point.

5 Press the STOP or PLAY button at the position where editing is to be completed (OUT point) while viewing the TV monitor. The unit goes into the stop mode, and editing is completed.

<Notes>
- The edit IN and OUT points are not entered with manual editing.
- The sound and pictures to be recorded are offset from the playback pictures by at least 5 frames and recorded. When, for instance, recording sound at a particular timing while the playback pictures are monitored, the sound to be recorded will be recorded at a position which is offset from the playback pictures by 5 frames.

Preroll

1 Press the PREROLL button.

The VTR now performs the preroll operation.

- When the edit IN point has been entered, the tape is rewound from the edit IN point for the duration set by setting menu “000,” and the unit then goes into the stop mode.
- When the edit IN point has not been entered, the tape is rewound for the duration set by setting menu “000” from the position where the button was pressed, and the unit then goes into the stop mode.

<Notes>

- The time code or CTL signal must be continuously recorded between the edit IN point and preroll point.
- When the IN point has not been entered, whether to enter the IN point and perform preroll or to perform preroll without entering the IN point can be selected at setting menu No. 311 (AUTO ENTRY).

Automatic editing (Deck to Deck)

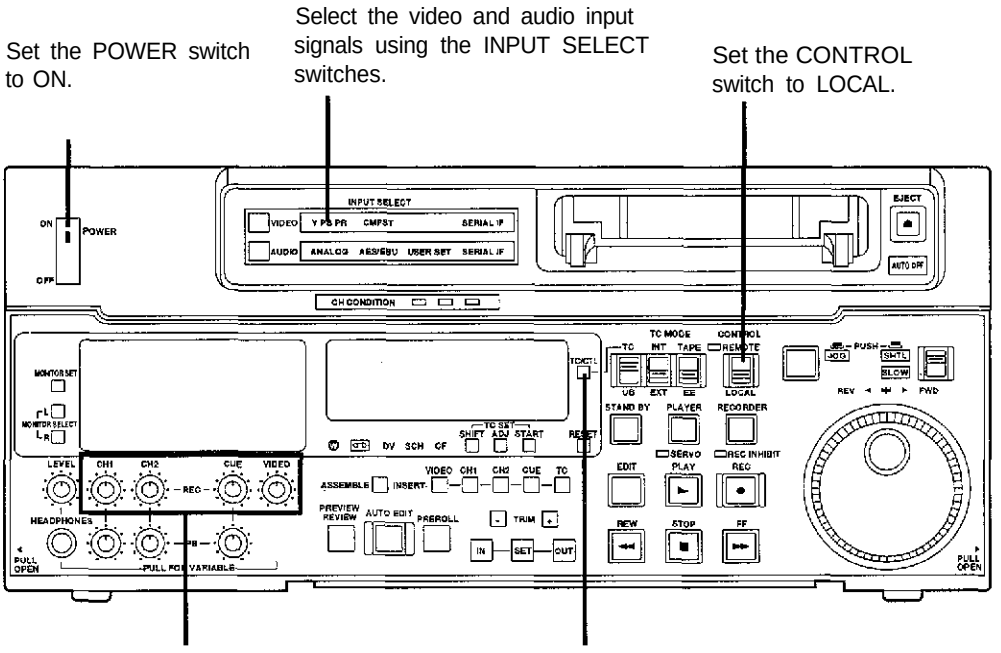
Editing refers to the job of using a prerecorded tape to produce a complete recording by joining together separate cuts and deleting unnecessary parts.

The basic steps taken for editing are as follows.

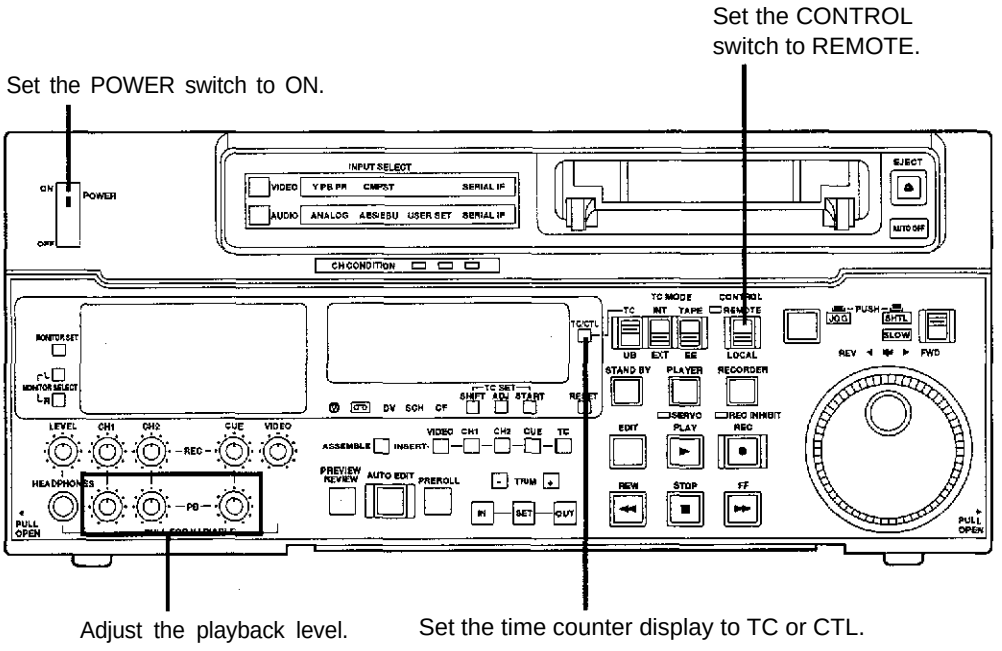
1. Set the CONTROL switch to REMOTE on the player and to LOCAL on the recorder.
2. Select the editing mode.
3. Enter the edit points of the recorder and player.
4. Check and modify the edit points.
5. Check (Preview) before proceeding with the editing.
6. Proceed with the editing.
7. Check (Review) the recording that has resulted from the editing.

Switch settings and adjustments

When the unit is used as the recorder:


Set the POWER switch to ON.
Select the video and audio input signals using the INPUT SELECT switches.
Set the CONTROL switch to LOCAL.
Adjust the recording level.
Set the time counter display to TC or CTL.

When the unit is used as the player:


Set the CONTROL switch to REMOTE.
Set the POWER switch to ON.
Adjust the playback level.
Set the time counter display to TC or CTL.

Select the editing mode

1 Select the editing mode.
For assemble editing, press the ASSEMBLE button.
For insert editing, press the INSERT button.

ASSEMBLE: The assemble editing mode (in which cuts are joined together) is established.

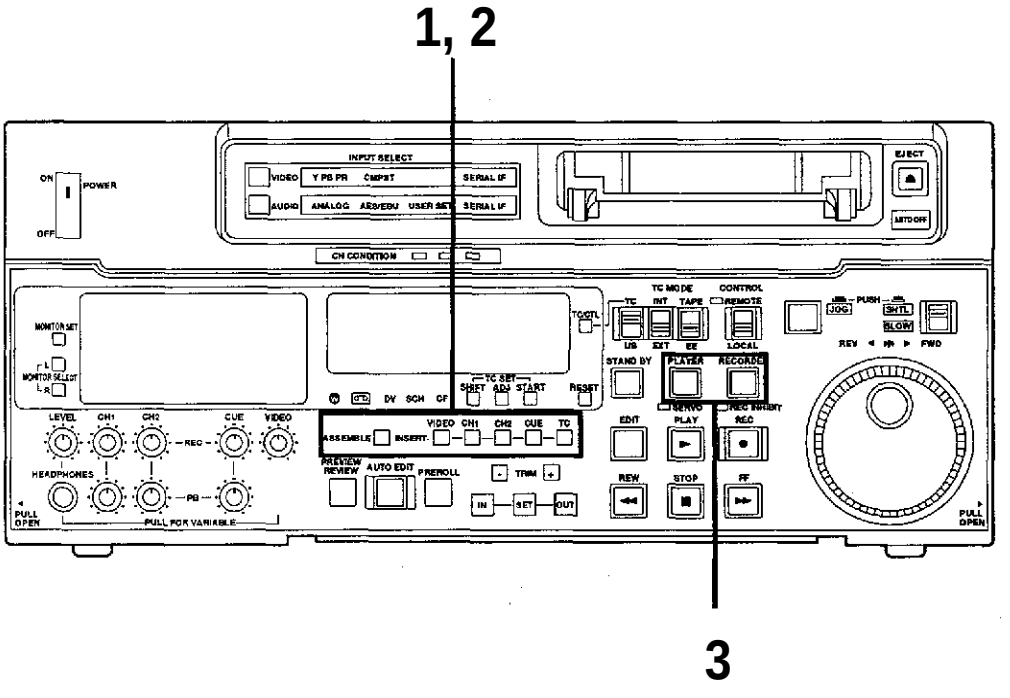
INSERT: The insert editing mode (in which cuts are inserted) is established.

2 Select the editing channel.
With assemble editing, the ASSEMBLE lamp light.
With insert editing, press the button of the channel whose signals are to be edited and light its lamp.

3 Select the VTR to be operated (this setting is performed when editing with 2 VTRs).
Press the PLAYER or RECORDER button to select the VTR.

PLAYER: Press this button to operate the player VTR and enter the edit points.

RECORDER: Press this button to operate the recorder VTR (this unit) and enter the edit points.



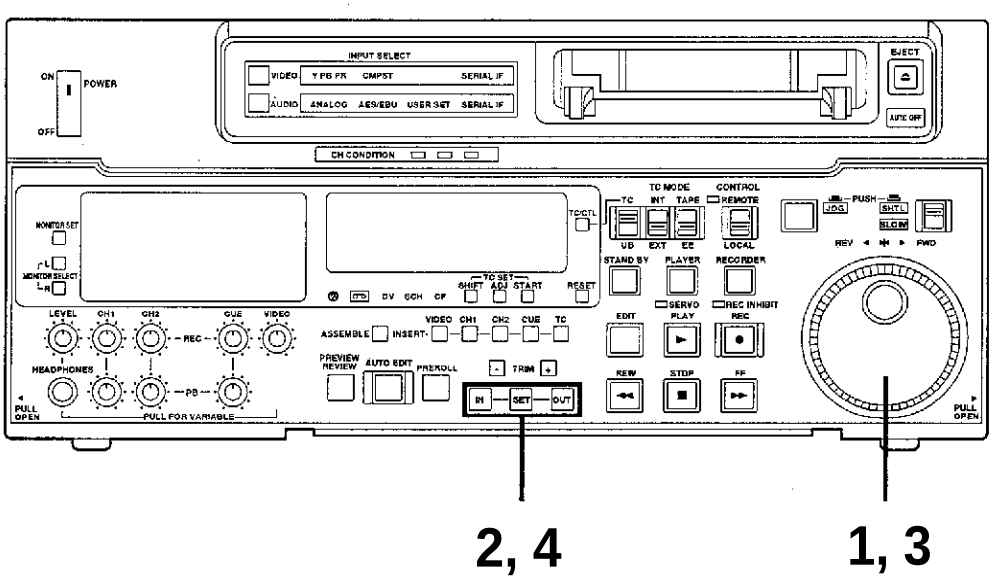
Entering the edit points

1. Search for the edit IN point by performing the jog or shuttle operation.
   Establish the still picture mode at the desired position.
   Refer to page 28 for details on the jog/shuttle operations.

2. Press the IN and SET buttons together.
   The edit IN point is now entered.
   The edit IN point value now appears on the display.

3. Search for the edit OUT point by performing the jog or shuttle operation.
   Establish the still picture mode at the desired position.
   Refer to page 28 for details on the jog/shuttle operations.

4. Press the OUT and SET buttons together.
   The edit OUT point is now entered.
   The edit OUT point value now appears on the display.



Match frame processing function

When using two VTRs for editing, a total of four edit points—namely, the player's IN and OUT points and the recorder's IN and OUT points—need to be entered. However, since the last edit point is calculated automatically, only three of these edit points must be entered.

Negative duration function

This function is used by combining setting menu No. 301 (IN/OUT DEL) and NO. 302 (NEGA FLASH) described on page 49.

Checking the edit points

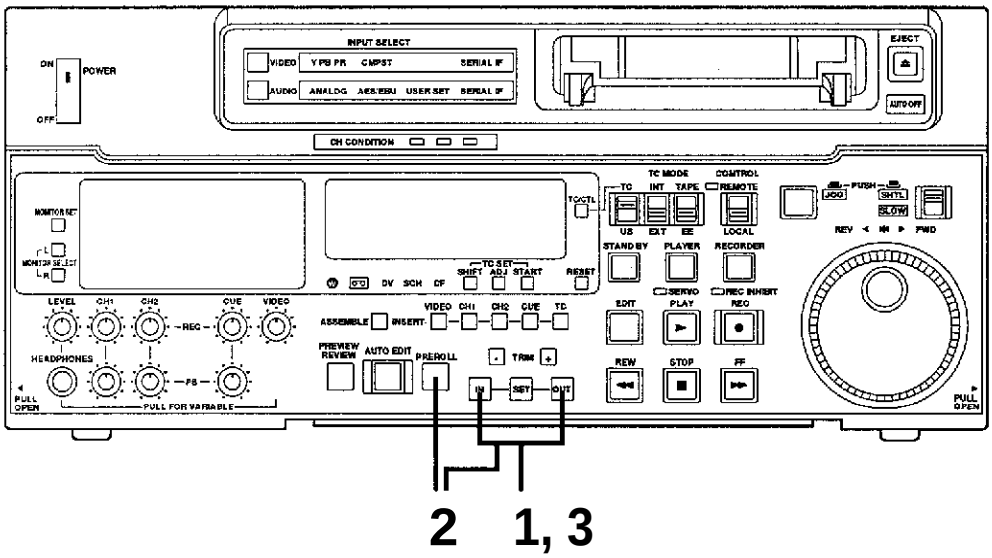
1 Press the IN (or OUT) button to check the edit point.
The value of the entered edit point appears on the display.

2 Press the IN (or OUT) button while holding down the PREROLL button to check the image at the edit point.
The tape is accessed at the edit IN (or OUT) point, and the still picture mode at that point is displayed.

3 Press the IN and OUT buttons together to check the edit duration.
The duration time appears on the display.

Calculating the duration

- When both edit points have been set, the duration between the two edit points.
- When only one edit point has been set, the duration between the set data and the current tape address.
- When neither edit point has been set, the duration of the previously edited interval.



Modifying the edit points

1 Re-entering the edit points

Search for the new edit point by performing the jog or shuttle operation, and press the IN (or OUT) and SET buttons together to re-enter the edit point.

2 Modifying the edit point in frame units (trim function)

Press the TRIM button while holding down the IN (or OUT) button.
The edit point is put ahead by 1 frame each time the + button is pressed.
The edit point is put back by 1 frame each time the – button is pressed.

3 Resetting the edit points

3-1 Resetting both the edit IN and OUT points

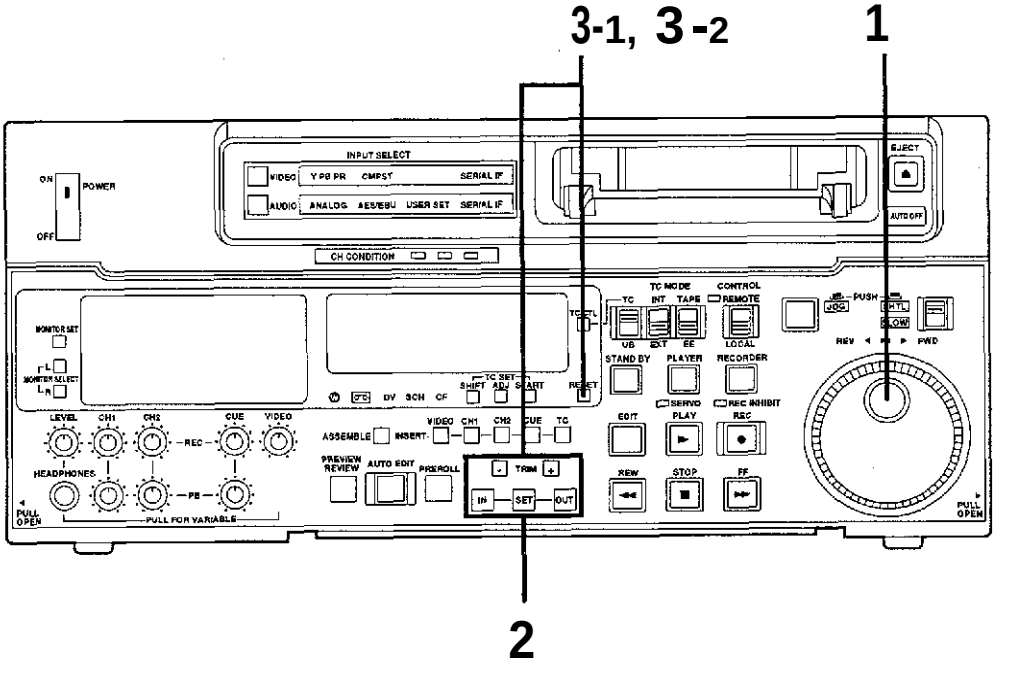
- Press the RESET button.

3-2 Resetting either the edit IN or OUT point

- Press the RESET button while holding down the IN (or OUT) button.

<Notes>

- Edit points can be reset only in the CTL mode.
- An edit OUT point can be reset even while editing is in progress.
- The IN and OUT points are automatically reset during the eject mode.

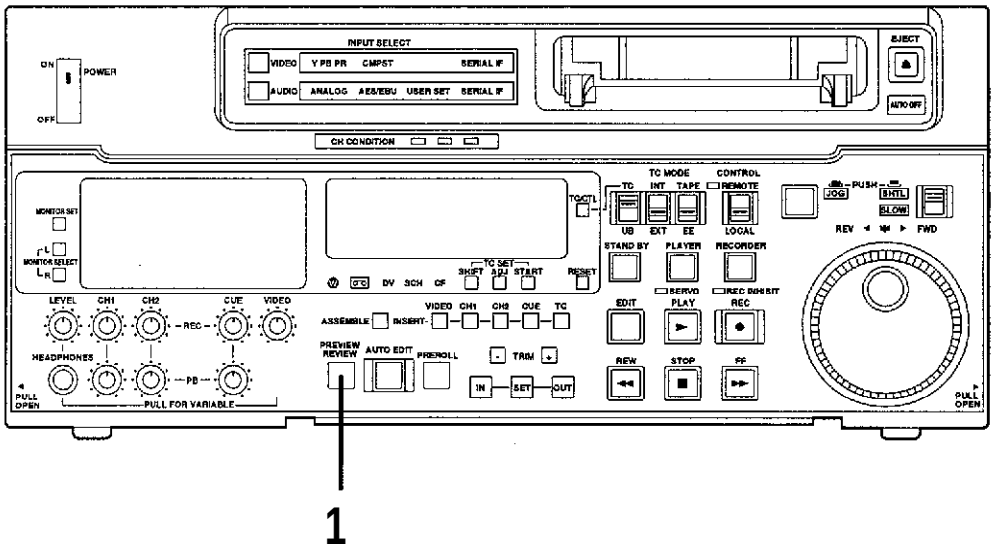


Preview

1 After the edit points have been entered, press the PREVIEW button.
Normal preview is now performed.

<Notes>

- If the edit IN point has not been entered, the position where the PREVIEW button was pressed will be entered at the edit IN point.
- To stop the preview at any time, press the STOP button.
- If the PREVIEW button is pressed again while preview is in progress after the IN point, preview will start again from the beginning.
- When the edit OUT point is reached, the unit automatically goes into the stop mode.



Executing automatic editing

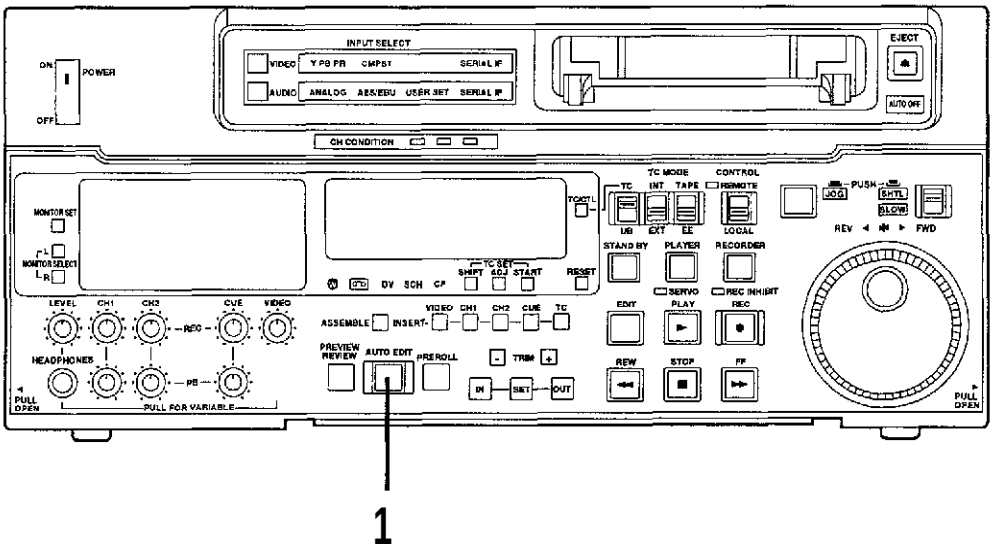
1 Press the AUTO EDIT button.
Automatic editing is now performed.
- To stop the editing at any time, press the STOP button.
- When the edit OUT point is reached, the unit goes into the stop mode after postrolling.

Postroll
With assemble editing, editing continues for approx. 2 seconds even after the edit OUT point has been passed, the tape is rewound to the OUT point, and the unit goes into the stop mode.
With insert editing, the unit goes into the play mode after the edit OUT point has been passed, the tape is rewound to the OUT point, and the unit goes into the stop mode.

Retry function
If the AUTO EDIT button is pressed again after the STOP button has been pressed to stop the editing, editing will start again from the beginning.

Auto tag editing
If the AUTO EDIT button is pressed when the next edit point has not yet been entered upon completion of editing, the previous edit OUT point will be entered as the IN point, and editing is performed accordingly.
To release the auto tag mode, press one of the tape transport buttons (PLAY, etc.).

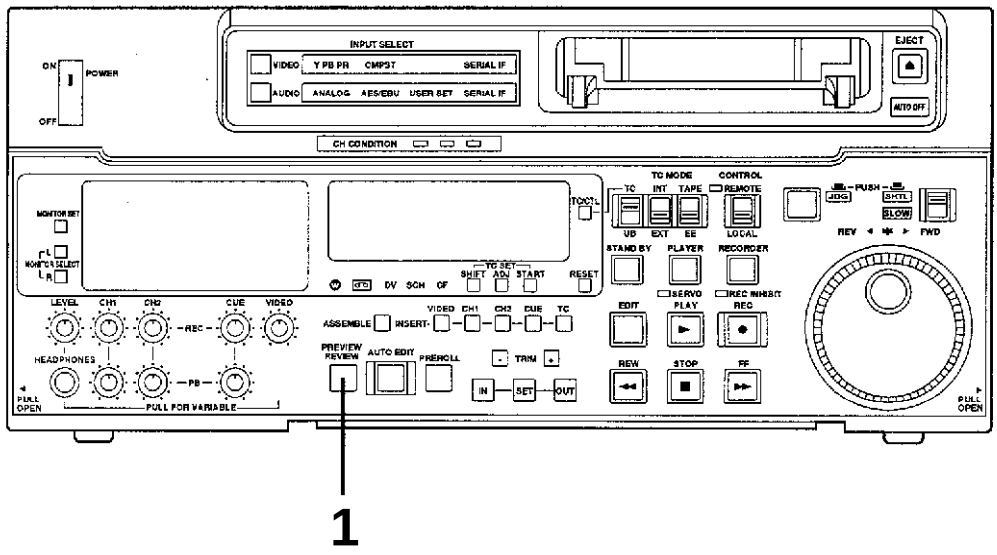
<Note>
The entered points are automatically cleared after editing is executed. However, the previous editing points can be recalled by pressing the TRIM+ (or TRIM–) and SET buttons together.



Review

1 Upon completion of the editing, press the REVIEW button.
The review is started in the recorder.

- To stop the review at any time, press the STOP button.
- When the edit OUT point is reached, the unit goes into the stop mode after postrolling.



Split editing

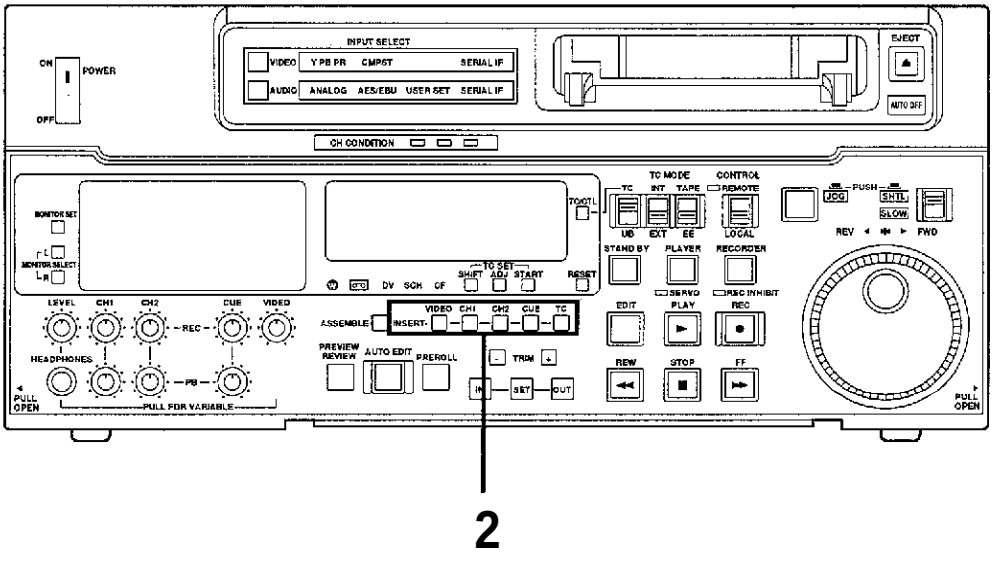
Split editing refers to editing where the editing channels are switched while insert editing is in progress.

1 Perform insert editing.

2 Switch the editing channel.
When, for instance, sound from AUDIO CH2 is to be additionally inserted during video channel insert editing:

2-1 Press the AUDIO CH2 button during video channel editing.
The lamp in the button lights and the AUDIO CH2 sound is insert edited.

2-2 Press the AUDIO CH2 button again and turn off the lamp in the button.
This completes the AUDIO CH2 insert editing.



Video output (encoder output) signal adjustments

After this system has been connected, the video output signal (ENCODER OUT) must be adjusted if AB roll editing (editing using two source machines) using an editor, for instance, is to be error-free and accurate. (This adjustment must be repeated when one of the connecting cables has been replaced and whenever the connections are changed.)

The adjustment procedure using this unit is outlined below.

1 Check the connections. (see page 22.)

2 Set the REMOTE/LOCAL switch ㊾ on the front panel bottom section to the adjustment position (LOCAL).

REMOTE: For adjusting the video output signals using an external encoder remote controller.

LOCAL: For adjusting the video output signals using this unit.

3 Adjust the source machine independently.

3-1 When using the preset values

Set the PRESET/MANUAL switches of the VIDEO LEVEL, CHROMA LEVEL, SETUP and HUE controls to PRESET.

3-2 When adjusting the video output signals without using the preset values

1 Play back a cassette tape on which standard color bar signals have been recorded.

2 Adjust the controls in such a way that the waveforms on the waveform monitor (WFM) and vectorscope (VSC) resemble those shown in the figures below.

A Video level

Adjust this level to 100IRE.

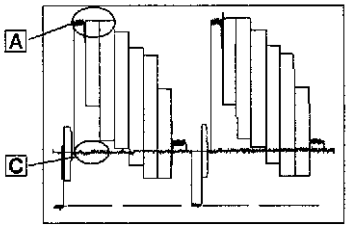
B Chroma level and hue

Adjust the two controls in such a way that the light spot of the vector waveforms comes inside the rectangular grid mark.

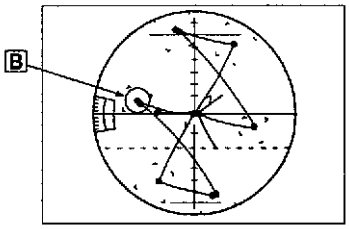
C Setup level

Adjust the control to eliminate deviation.

■ **Waveform on WFM**



■ **Waveform on VSC**



4 Perform the same adjustments on the source machine connected to the unit.

Setup (default settings)

The units major settings are performed by making selections on menus.
The setting menus appear on the TV monitor when the TV monitor and VIDEO OUT 3 connector in the unit's connector area are hooked up.

Changing the settings

1 Press the MENU button.
The setup menu appears on the TV monitor and setup menu No. appears on the counter display. (If the setup has already been performed, the screen showing the changes made last will appear.)

2 Rotate the search dial and select the item to be set.
The cursor (*) on the menu screen moves and the item No. on the display flashes.
- When the dial is rotated clockwise, the item No. is incremented from 001 → 002 → 003 → 004 and so on; when it is rotated counterclockwise, the item No. is decremented.
- The search dial should be used in jog mode if at all possible.
- Hold down the PLAY button and press the FF (next major item) or REW (previous major item) buttons to select the menu by major item.

3 While holding down the search button, rotate the search dial at the position where the change is to be made.
The setting No. now flashes.
When the dial is rotated clockwise, the setting value is incremented; when it is rotated counterclockwise, it is decremented.

4 Release the search button when the setting is completed.
The setting value on the menu screen and display flashes.
- During the SHTL mode, the item moves if the search dial is not at the STILL position.

5 Repeat steps 2 through 4 to change another item.

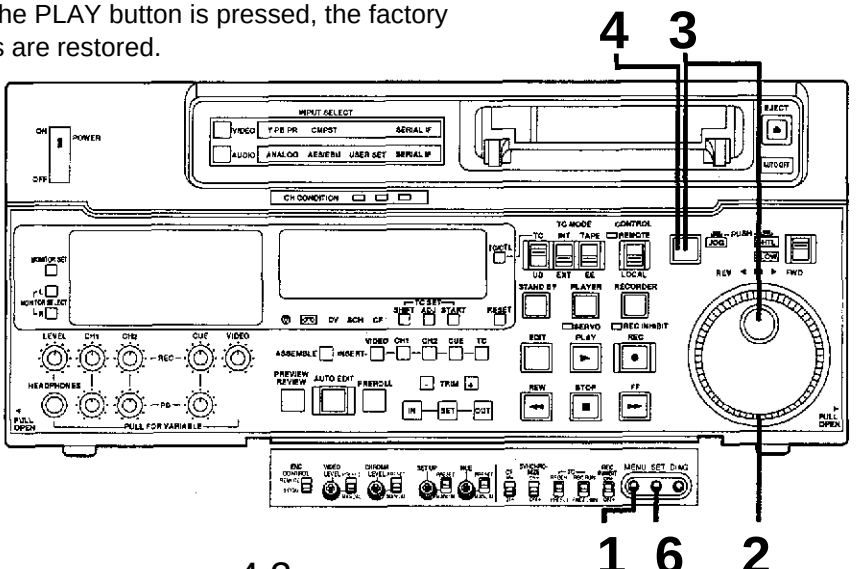
6 Press the SET button.
The changes are now stored in the memory.
- To return the items to the settings established before the changes were made, press the MENU button.

To return the setup settings to the factory (default) settings, press the RESET button while the menu is displayed. **The following message will now appear:**

SETUP-MENU INIT SET
YES<PLAY>/NO<STOP>

When the PLAY button is pressed, the factory settings are restored.

<Note>
- When the RESET button is pressed to return to the factory settings, the factory settings are restored only for the user file currently being used and other user files are not affected.
- The changed SYSTEM menu contents are recorded even if the MENU button is pressed.

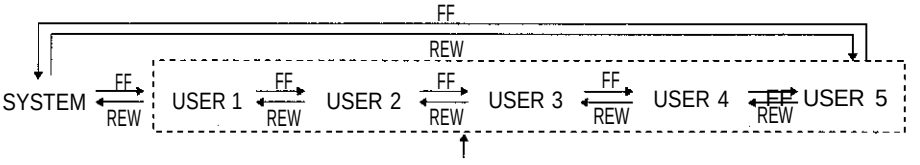


This unit can store up to 5 user files (user 1 to user 5) containing different menu settings, and these files can be selected and used.

Changing the file

1 Press the MENU button.

2 Hold down the STAND BY button and press the FF button to switch to the next user file.
Hold down the STAND BY button and press the REW button to switch to the previous user file.



USER FILE
Each user file contains the following items.
- BASIC (No. 000~009)
- OPERATION (No. 100~106)
- INTERFACE (No. 200~203)
- EDIT (No. 300~312)
- TAPE PROTECT (No. 400,401)
- TIME CODE (No. 500~509)
- VIDEO (No. 600~611)
- AUDIO (No. 700~720)

3 Repeat the operation in step 2 to select the user file to be used and press the SET button. The user file is changed and stored in the memory.

<Note>
- SYSTEM menu items are not included in user files 1 to 5.
  Therefore, after selecting the user file, switch to the SYSTEM file and set the SYSTEM menu items.

SYSTEM menu

<SYSTEM>

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
00	SYS SC	0000 ⋮ 0127 ⋮ 0255	–127 ⋮ 0 ⋮ 128	System phase adjustment: Total variable range: ±180° or more –: Advanced +: Delayed **<Note>** When shipped from the factory, the setting values do not change even if setting operations are performed.
01	SYS H	0000 ⋮ 0032 ⋮ 0060	–30 ⋮ 0 ⋮ 30	System phase adjustment: SC cycle phase (280 ns steps) –: Advanced +: Delayed **<Note>** When shipped from the factory, the setting values do not change even if setting operations are performed.
02	VIDEO PHASE	0000 ⋮ 0032 ⋮ 0064	–32 ⋮ 0 ⋮ 32	Video phase adjustment: 148 ns steps –: C advanced +: C delayed
03	YC COARSE	0000 ⋮ 0002 ⋮ 0004	–2 ⋮ 0 ⋮ 2	YC timing rough adjustment: 148 ns steps –: C advanced +: C delayed
04	YC FINE	0000 ⋮ 0002 ⋮ 0004	–2 ⋮ 0 ⋮ 2	YC timing fine adjustment: 37 ms steps –: C advanced +: C delayed (The digital OUT option YC does not change.)
05	SCH COARSE	0000 0001 0002 0003	0 90 180 270	SCH phase adjustment: 90° units (The S and C phases change but the H phase does not change.)
06	SCH FINE	0000 ⋮ 0128 ⋮ 0255	–124 ⋮ 0 ⋮ 123	SCH phase adjustment: Total variable range: ±45° or more (The S and C phases change but the H phase does not change.)
07	P_B OUT LV	0000 ⋮ 0124 ⋮ 0247	–124 ⋮ 0 ⋮ 123	Component P_B output level adjustment: Total variable range : ±3 dB
08	P_R OUT LV	0000 ⋮ 0124 ⋮ 0247	–124 ⋮ 0 ⋮ 123	Component P_R output level adjustment: Total variable range : ±3 dB
10	AV PHASE	0000 ⋮ 0128 ⋮ 0255	–128 ⋮ 0 ⋮ 127	This adjusts the audio output phase with respect to the video output: 20.8μs steps –: The audio output phase is advanced with respect to the video output. +: The audio output phase is delayed with respect to the video output.

The underline on the setting item denotes the initial setting.

USER menu <BASIC>

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
000	P-ROLL TIME	0000 ⋮ 0005 ⋮ 0015	0S ⋮ 5S ⋮ 15S	This sets the preroll time which can be set from 0 to 15 seconds in l-second increments. **<Note>** When the unit is set to automatic editing [PREVIEW, AUTO EDIT], the unit will not operate if the preroll time is set to 0 seconds.
001	CHARA H-POS	0000 ⋮ 0005 ⋮ 0012	0 ⋮ 5 ⋮ 12	This sets the position of the characters on the horizontal plane for the time code and other super displays output to the VIDEO OUT 3 connector. **<Note>** 1. When setting this item, the DISPLAY SEL status is output to VIDEO 3 even if SUPER OFF has been set. However, when the menu is exited, operation complies with the SUPER OFF/ON setting. Also, CHARA TYPE is output to VIDEO 3 according to the status set in the menu. 2. When the DISPLAY SEL setting causes characters to extend beyond the edges of the screen, the setting value is changed so that the characters are automatically displayed in a position on the screen.
002	CHARA V-POS	0000 ⋮ 0018 ⋮ 0022	0 ⋮ 18 ⋮ 22	This sets the position of the characters on the vertical plane for the time code and other super displays output to the VIDEO OUT 3 connector. **<Note>** 1. When setting this item, the DISPLAY SEL status is output to VIDEO 3 even if SUPER OFF has been set. However, when the menu is exited, operation complies with the SUPER OFF/ON setting. Also, CHARA TYPE is output to VIDEO 3 according to the status set in the menu. 2. When the DISPLAY SEL setting causes characters to extend beyond the edges of the screen, the setting value is changed so that the characters are automatically displayed in a position on the screen.
003	DISPLAY SEL	0000 0001 0002	TIME T&STA T&S&M	This selects what information is to be provided by the time code and other super displays output to the VIDEO 3 connector. 0: Time only. 1: Time and status. 2: Time, status and mode. **<Note>** The mode display is DVCPRO mode display during DVCPRO format and DV mode display during DV format.
004	LOCAL ENA	0000 0001 0002	DIS ST&EJ ENA	This selects the buttons which can be operated on the front panel when the REMOTE/LOCAL switch has been set to REMOTE. 0: No buttons can be operated. 1: Only the STOP and EJECT buttons can be operated. 2: All buttons except for the RECORDER and PLAYER buttons can be operated.
005	TAPE TIMER	0000 0001	±12h 24h	This selects the 12 or 24 hour display for the CTL counter. 0: 12 hour display 1: 24 hour display
006	SUPER	0000 0001	OFF ON	This selects whether the time code and other super display which are output to the VIDEO OUT 3 connector is to shown. 0: Not shown. 1: Shown.

The underline on the setting item denotes the initial setting.

USER menu

<BASIC> (continued)

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
007	CHARA TYPE	0000	WHITE	This selects the display type for the super display output to the VIDEO OUT 3 connector as well as for displays such as the setting menu, etc. 0: White characters against a black background. 1: White characters with a black border.
		0001	W/OUT	
008	REMAIN SEL	0000	OFF	This selects whether the remaining tape time is shown on the front panel. 0: Not shown. 1: Shown. **<Note>** Even when "Shown" is selected, the remaining tape time is not shown while the unit is calculating the remaining tape time after ejecting or inserting the cassette.
		0001	ON	
009	SETUP NUMBER	0000	OFF	This selects whether the SETUP-MENU No. is displayed on-screen. 0: The SETUP-MENU No. is not displayed. 1: The SETUP-MENU No. is displayed.
		0001	ON	

The underline on the setting item denotes the initial setting.

USER menu

<OPERATION>

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
100	SEARCH ENA	0000	DIAL	This selects the direct search dial operation. 0: For direct search dial operations. 1: Operation is not transferred to the search mode unless the search button is pressed.
		0001	KEY	
101	SHTL MAX	0000	× 16	This sets the maximum speed for shuttle operations. 0: 16 × normal speed 1: 32 × normal speed 2: 60 × normal speed **<Note>** During DV format, the maximum speed is 32 × normal speed even when 60X is selected.
		0001	× 32	
		0002	× 60	
102	FF. REW MAX	0000	× 32	This sets the maximum speed for FF and REW operations. 0: 32 × normal speed 1: 60 × normal speed 2: 100 × normal speed **<Note>** During DV format, the maximum speed is 32 × normal speed regardless of this setting.
		0001	× 60	
		0002	× 100	
103	AUDIO MUTE	0000	OFF	This sets the status until the audio signal is output when operation switches from the stop or search modes to the play mode. 0: The time until the audio is output is shortened. 1: The audio is output after the status stabilizes. **<Note>** When set to 0 (OFF), the sound in the initially output part is incomplete. Therefore, this setting is not recommended for broadcasts.
		0001	ON	
104	REF ALARM	0000	OFF	This selects whether to warn the operator when the REF.VIDEO signal has not been connected. 0: Warning is not given. 1: Warning is given by the flashing STOP lamp.
		0001	ON	
105	AUTO EE SEL	0000	S/F/R	This selects the VTR mode in which the EE status is established when the TAPE/EE switch is set to EE. 0: EE status is established in the STOP, FF or REW mode. However, EE status is always established in EJECT mode regardless of the TAPE/EE switch setting. 1: EE status is established only in the stop mode. However, EE status is always established in EJECT mode regardless of the TAPE/EE switch setting. 2: EE status is established only in the stop mode. However, depending on TAPE/EE switch setting EJECT mode is as follows: TAPE/EE switch EE: EE status TAPE/EE switch TAPE: BLACK status for video MUTE status for audio
		0001	STOP	
		0002	BLACK	
106	PLAY DELAY	0000	0	This set the play delay time in frame increments.
		⋮	⋮	
		0015	15	

The underline on the setting item denotes the initial setting.

USER menu

<INTERFACE>

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
200	PARA RUN	0000	DIS	This selects whether two or more VTRs are to be operated in synchronization. 0: No operation in synchronization 1: Operation in synchronization **<Note>** When operating two or more VTRs in synchronization, set item 200 of all the VTRs to 0001.
		0001	ENA	
201	9P SEL	0000	OFF	This selects whether the 9P connector functions when the REMOTE/LOCAL switch has been set to REMOTE. 0: Do not function 1: Function
		0001	ON	
202	ID SEL	0000	OTHER	This selects the ID information which is returned to the controller. 0: 20 25H 1: DVCPRO's, own ID is returned (F0 33H).
		0001	DVCPRO	
203	25P SEL	0000	OFF	This selects whether the PARALLEL (25P) connector functions when the REMOTE/LOCAL switch has been set to REMOTE. 0: Does not function 1: Functions
		0001	ON	

The underline on the setting item denotes the initial setting.

USER menu

<EDIT>

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
300	VAR RANGE	0000 0001	– 0.43 – 1 –4–+4	This sets the VAR speed range. 0: The tape is played in slow motion at a speed ranging from – 0.43 × to +1 × (or from – 0.5 × to +1 × for the DV format) normal speed. 1: The tape is played in the ±4.1 × normal speed range. **<Note>** Phase synchronization from the editing controller is no longer possible once this item has been set to "0". For DV format: When using the dial on the front panel, playback is always performed at – 0.5 to +1 × normal speed regardless of the menu setting. When using the 9P (RS-232C), when 0 is selected, playback is performed at – 0.5 to +1 × normal speed. When 1 is selected, playback is performed at – 3.1 to +3.1 × normal speed.
301	IN/OUT DEL	0000 0001	MANU AUTO	This selects the operation to be performed when an edit point has been set incorrectly (when the OUT point is before the IN point). 0: Editing is not executed unless the illegal edit point is cleared or set again properly. 1: The edit points already input are automatically cleared.
302	NEGA FLASH	0000 0001	OFF ON	This selects whether to show a negative display when the IN point is greater than the OUT point. 0: No negative display. 1: Negative display.
303	STD/ NON-STD	0000 0001 0002	AUTO STD N-STD	This selects STD or NON-STD in accordance with the composite input signal.. 0: Standard/non-standard signals are automatically identified and processed. 1: Standard signals are processed. (Forced STD) 2: Non-standard signals are processed. (Forced NON-STD)
304	SERVO REF	0000 0001	AUTO EXT	This selects the video signal processing. 0: Servo is synchronized with the input signal during recording and editing, or with the REF signal during playback. 1: Servo is synchronized at all times with the REF signal.
305	EDIT RPLCE1	0000 0001 0002 0003	N-DEF CH1 CH2 CH1+2	This sets the channel assignments for the controller's analog audio preset when editing the digital audio of the VTR using a controller which does not have a digital audio edit preset control function. This selects the channel concerned when the VTR CH1 edit preset is set in compliance with the ON or OFF presetting for the analog audio signals designated by the controller. 0: Not set. 1: Compliance with analog CH1 edit preset. 2: Compliance with analog CH2 edit preset. 3: Compliance with either analog CH1 or CH2 edit preset.

The underline on the setting item denotes the initial setting.

USER menu

<EDIT> (continued)

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
306	EDIT RPLCE2	0000 0001 0002 0003	N-DEF CH1 CH2 CH1+2	This sets the channel assignments for the controller's analog audio preset when editing the digital audio of the VTR using a controller which does not have a digital audio edit preset control function. This selects the channel concerned when the VTR CH2 edit preset is set in compliance with the ON or OFF presetting for the analog audio signals designated by the controller. 0: Not set. 1: Compliance with analog CH1 edit preset. 2: Compliance with analog CH2 edit preset. 3: Compliance with either analog CH1 or CH2 edit preset.
307	EDIT RPLCEC	0000 0001 0002 0003	N-DEF CH1 CH2 CH1+2	This sets the channel assignments for the controller's analog audio preset when editing the digital audio of the VTR using a controller which does not have a digital audio edit preset control function. This selects the channel concerned when the VTR CUE edit preset is set in compliance with the ON or OFF presetting for the analog audio signals designated by the editor or controller. 0: Not set. 1: Compliance with analog CH1 edit preset. 2: Compliance with analog CH2 edit preset. 3: Compliance with either analog CH1 or CH2 edit preset.
308	CONFI EDIT	0000 0001	OFF ON	This selects whether to conduct simultaneous playback while editing is in progress. 0: No simultaneous playback 1: Simultaneous playback **<Note>** Simultaneous playback is valid when the TAPE/EE switch is set to TAPE.
309	AUD EDIT IN	0000 0001	CUT FADE	This selects the connection method for the digital audio edit IN point. 0: Cut processing 1: V Fade processing
310	AUD EDIT OUT	0000 0001	CUT FADE	This selects the connection method for the digital audio edit OUT point. 0: Cut processing 1: V Fade processing
311	AUTO ENTRY	0000 0001	DIS ENA	This selects whether the IN point is to be entered using the PREROLL button when it has not been entered. 0: IN point is not entered. 1: IN point is entered.
312	CF ADJ SEL	0000 0001	PLAYER RECORD	This selects the CF adjustment deck with deck-to-deck editing. 0: The player's edit IN/OUT points are adjusted. (reference as the RECORDER side) 1: The recorder's edit IN/OUT points are adjusted. (reference as the PLAYER side)
313	AFTER CUE-UP	0000 0001	STOP STILL	This selects the mode after cue-up operation is complete. 0: STOP mode 1: SHTL STILL mode

The underline on the setting item denotes the initial setting.

USER menu

<TAPE PROTECT>

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
400	STILL TIMER	0000	0.5s	This selects the time to be taken until the unit goes into the tape protection mode when it is left standing in the stop or search still (JOG/VAR/SHTL) mode. (Unit: s = second, min = minute) **<Note>** With the DV format, the maximum time which can be set is 10s even when a setting above 10s has been selected. The selection screen, however, will operate for up to 2 minutes.
		0001	5s	
		0002	10s	
		0003	20s	
		0004	30s	
		0005	40s	
		0006	50s	
		0007	1 min	
		0008	2min	
401	SRC PROTECT	0000	STEP	This selects the operation during the tape protection mode when the unit is left standing in the still status during the search mode (JOG/VAR/SHTL). 0: STEP FWD. 1: HALF LOADING. **<Note>** When STEP FWD is selected, the unit automatically goes into the HALF LOADING mode when the total time for which the unit is left standing in the still status reaches 30 minutes (DVCPRO) or 1 minute (DV).
		0001	HALF	

The underline on the setting item denotes the initial setting.

<Note>

In order to protect the tape and VTR helical heads, it is recommended that the Still Timer be set for automatic tape protection mode in 30 seconds or under.

USER menu

<TIME CODE>

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
500	VITC POS-1	0000	10L	This sets the position where the VITC signal is to be inserted. (The same line as for VITC POS-2 in 501 cannot be selected.)
		0001	11L	
		0002	12L	
		0003	13L	
		0004	14L	
		0005	15L	
		0006	16L	
		0007	17L	
		0008	18L	
		0009	19L	
		0010	20L	
501	VITC POS-2	0000	10L	This sets the position where the VITC signal is to be inserted. (The same line as for VITC POS-1 in 500 cannot be selected.)
		0001	11L	
		0002	12L	
		0003	13L	
		0004	14L	
		0005	15L	
		0006	16L	
		0007	17L	
		0008	18L	
		0009	19L	
		0010	20L	
502	VITC BLANK	0000	BLANK	This selects whether to output the VITC data to the positions selected by VITC POS-1 in 500 and VITC POS-2 in 501. 0: Data is not output. 1: Data is output.
		0001	THRU	
503	TCG REGEN	0000	TC&UB	This selects the signal to be regenerated when the time code generator (TCG) in the REGEN mode. 0: Both the time code and user bit are regenerated. 1: Only the time code is regenerated. 2: Only the user bit is regenerated.
		0001	TC	
		0002	UB	
504	REGEN MODE	0000	AS&IN	This selects whether the time code is to be regenerated during automatic editing using the unit's control panel. 0: Time code is regenerated with assemble or insert editing. 1: Time code is regenerated with assemble editing. 2: Time code is regenerated with insert editing. 3: Setting complies with REGEN/PRESET switch setting.
		0001	ASSEM	
		0002	INSRT	
		0003	SW	
505	EXT TC SEL	0000	LTC	This selects the time code to be used when an external time code is to be used. 0: The LTC of the TIME CODE IN connector is used. 1: The video signal LITC is used.
		0001	VITC	

The underline on the setting item denotes the initial setting.

USER menu

<TIME CODE> (continued)

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
506	BINARY GP	0000	000	This sets the usage status of the user bit of the time code generated by the TCG. 0: NOT SPECIFIED (character set not specified) ISO CHARACTER (8 bits character set based on ISO646, ISO2022) 2: UNASSIGNED 1 (undefined) 3 UNASSIGNED 2 (undefined) 4: UNASSIGNED 3 (undefined) 5: PAGE/LINE 6: UNASSIGNED 4 (undefined) 7: UNASSIGNED 5 (undefined)
		0001	001	
		0002	010	
		0003	011	
		0004	100	
		0005	101	
		0006	110	
		0007	111	
507	PHASE CORR	0000	OFF	This selects whether to control the phase correction of the LTC generated by the TCG. 0: Phase correction control is not performed. 1: Phase correction control is performed.
		0001	ON	
508	TCG CF FLAG	0000	OFF	This selects whether the CF flag of the TCG is to ON. 0: CF flag is OFF. 1: CF flag is ON.
		0001	ON	
509	DF MODE	0000	DF	This selects the DF/NDF mode for CTL and TCG. 0: Drop frame mode. 1: Non-drop frame mode. No.509 is valid when the CONTROL is LOCAL or LOCAL ENA of item 004 to "ENA".
		0001	NDF	

The underline on the setting item denotes the initial setting.

USER menu <VIDEO>

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
600	P_B/P_R IN LV	0000 0001	MII B-CAM	This selects the component input signal level. 0: MII level. 1: β cam level.
601	INT BB SIG	0000 0001	OFF BB	This selects whether to generate the internal black burst signal. 0: Signal is not generated. 1: Signal is generated.
602	INPUT C KILL	0000 0001	B/W AUTO	This selects color killer processing for the video input signals. 0: The signals are forcibly processed as B/W signals. 1: The signals are automatically processed.
603	OUT VSYNC	0000 0001	N-VF VF	This selects whether to float the vertical sync position of the video output in order to align the video output phase with the input in the EE/record/edit modes. 0: Signals are not floated. 1: Signals are floated.
604	V-MUTE SEL	0000 0001	N-MUTE LOW RF	This selects whether the video output signals are to be muted when the LOW RF or servo lock release condition occurs during playback. 0: No muting. (Freeze) 1: Muting. (Set to gray.)
605	CC (F1) BLANK	0000 0001	BLANK THRU	This selects ON or OFF for the closed capture signal in the first field. 0: Forced blanking performed. 1: Blanking not performed.
606	CC (F2) BLANK	0000 0001	BLANK THRU	This selects ON or OFF for the closed capture signal in the second field. 0: Forced blanking performed. 1: Blanking not performed.
607	CF ID SEL	0000 0001 0002	OFF ON AUTO	This selects whether to disable the CF ID in the component and SIG PB OUT. 0: ID is not added. 1: ID is forcibly added. 2: ID is added when the CF lamp is lighted.
608	FREEZE SEL	0000 0001	FIELD FRAME	This selects the freeze mode for still pictures. 0: Field freeze. 1: Frame freeze. **<Note>** When frame freeze has been selected, the frame slow status is established with the slow setting.
609	IN FRM DET	0000 0001	FORCED AUTO	This selects the conditions under which frame detection is to be performed when signals are input. 0: Frame detection is performed at all times. 1: Frame detection is prohibited only when non-standard signals are input.
610	OUT C KILL	0000 0001	B/W COLOR	This selects chroma color killer processing for the video output signals. 0: The signals are forcibly processed as B/W signals. 1: The signals are automatically processed.
611	EDH	0000 0001	OFF ON	This selects whether to superimpose EDH onto the serial output signals. 0: EDH is not superimposed. 1: EDH is superimposed. • This is not displayed when the optional serial interface board has not been installed.

The underline on the setting item denotes the initial setting.

USER menu

<AUDIO>

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
700	CH1 IN LV	0000	4dB	This selects the audio input (CH1) reference level switching.
		0001	0dB	
		0002	–20dB	
701	CH2 IN LV	0000	4dB	This selects the audio input (CH2) reference level switching.
		0001	0dB	
		0002	–20dB	
702	CUE IN LV	0000	4dB	This selects the audio input (CUE) reference level switching.
		0001	0dB	
		0002	–20dB	
		0003	–60dB	
703	CH1 OUT LV	0000	4dB	This selects the audio output (CH1) reference level switching.
		0001	0dB	
		0002	–20dB	
704	CH2 OUT LV	0000	4dB	This selects the audio output (CH2) reference level switching.
		0001	0dB	
		0002	–20dB	
705	CUE OUT LV	0000	4dB	This selects the audio output (CUE) reference level switching.
		0001	0dB	
		0002	–20dB	
706	MONIL OUT LV	0000	4dB	This selects the audio monitor output (Lch) reference level switching.
		0001	0dB	
		0002	–20dB	
707	MONIR OUT LV	0000	4dB	This selects the audio monitor output (Rch) reference level switching.
		0001	0dB	
		0002	–20dB	
708	MONI OUT	0000	UNITY	This selects the audio monitor output volume UNITY/ VARIABLE reference switching. 0: The volume is output at the preset value. 1: The volume is linked with the headphones volume control.
		0001	VAR	
709	EMPHA-SIS	0000	OFF	This sets the emphasis ON or OFF.
		0001	ON	
710	CH1 IN SEL	0000	ANA	This selects the CH1 input when USER SET has been selected by pressing the units AUDIO input selector switch. 0: Analog input. 1: Digital input.
		0001	DIGI	

The underline on the setting item denotes the initial setting.

USER menu

<AUDIO> (continued)

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
711	CH2 IN SEL	0000 0001	ANA DIGI	This selects the CH2 input when USER SET has been selected by pressing the units AUDIO input selector switch. 0: Analog input. 1: Digital input.
712	DIGI IN SEL	0000 0001 0002	AES SIF1-2 SIF3-4	This selects the CH1 and CH2 digital input when USER SET has been selected by the units AUDIO input selector switch. 0: AES. 1: Serial I/F 1 and 2. 2: Serial I/F 3 and 4. **<Note>** Selections 1 and 2 are selected when the serial option is mounted.
713	MONI CH SEL	0000 0001 0002	MANU AUTO 1 AUTO 2	This selects the monitor output. 0: The output is as selected in MONITOR SELECT. 1: The output defaults to CUE AUDIO except when speed factor is between – 0.43 × and 1 ×, inclusive, in which case output is PCM AUDIO. 2: The output defaults to CUE AUDIO except in PLAY mode, in which case output is PCM AUDIO.
714	REC CH1	0000 0001 0002	CH1 CH2 CH1+2	This selects the input signal to be recorded on the audio CH1 track. 0: Audio input CH1 signal. 1: Audio input CH2 signal. 2: Mixed audio input CH1 and CH2 signal.
715	REC CH2	0000 0001 0002	CH1 CH2 CH1+2	This selects the input signal to be recorded on the audio CH2 track. 0: Audio input CH1 signal. 1: Audio input CH2 signal. 2: Mixed audio input CH1 and CH2 signal.

The underline on the setting item denotes the initial setting.

USER menu

<AUDIO> (continued)

Item		Setting		Description
No.	Superimposed display	No.	Superimposed display	
716	REC CUE	0000 0001 0002 0003	CUE CH1 CH2 CH1+2	This selects the input signal recorded in CUE. 0: CUE IN 1: Audio CH1 input 2: Audio CH2 input 3: Audio CH1 and CH2 MIX signal
717	SCALE DISP	0000 0001	FULL FINE	This selects the level meter scale. 0: Full scale. 1: Fine scale.
718	DV OUTPUT	0000 0001 0002	ST1 ST2 ST1+2	This selects the AUDIO CH1 and CH2 output signals during DV format playback. 0: The CH1 track signals are output to CH1 and the CH2 track signals to CH2. 1: The CH3 track signals are output to CH1 and the CH4 track signals to CH2. 2: The mixed CH1 and CH3 track signals are output to CH1 and the mixed CH2 and CH4 track signals to CH2. **<Note>** This item setting is valid only when the tape recorded on the four channels of the DV format is played back.
719	PB FADE	0000 0001 0002	AUTO CUT FADE	This selects the processing method for the audio edit points (IN point, OUT point) during playback. 0: According to the status during recording. 1: Forced CUT 2: Forced FADE
720	EMBEDDED AUD	0000 0001	OFF ON	This selects whether to superimpose the audio data onto the serial output. 0: Data is not superimposed. 1: Data is superimposed. **<Note>** This item is valid when the optional serial interface board has been installed.

The underline on the setting item denotes the initial setting.

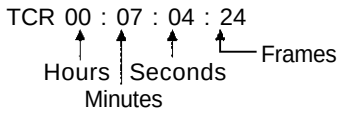
Time code/user bit

Time code

The time code is used when the time code signal generated by the time code generator (time code signal generator) is to be recorded on the tape, its values are to be read by the time code reader (time code signal reader), and the absolute position of the tape is to be displayed in increments of hours, minutes, seconds and frames.

The time code is written in the sub-code area (data area) of the helical track. This enables insert editing to be conducted independently using the time code alone. In addition, the VTR's playback speed can be read from the stop mode to slow-motion playback up to high-speed play (approx. 100X normal speed).

The time code values are indicated using the display and superimpose functions.



User bit

"User bit" refers to the 32-bit (8-digit) data frame among the time code signals which has been released to users. It enables operator numbers values to be recorded.
The alphanumeric characters which can be used for the user bit are the figures 0 to 9 and the letters A to F.

1. Setting the internal time code

1 Place the VTR in the stop mode.

2 Set the TC/CTL switch to TC.

3 Set the TC INT/EXT switch to INT. (internal time code selected)

4 Set the REC RUN/FREE RUN switch position.

REC RUN: The time code runs at the same time as the recording proceeds.

FREE RUN: The time code runs in the same way as the time regardless of the VTR's operation.

5 Set the REGEN/PRESET switch position.

REGEN: Continuity is maintained with the recorded time code before editing.
(Detailed settings are also possible using the menu settings. See the menu items below.)
Setting menu No. 503 (TCG REGEN)
Setting menu No. 504 (REGEN MODE)

PRESET: Recording starts from the value set with the TC SET button.

<Note>
During auto editing, REGEN will be selected by the SETUP menu No.504 setting even if the switch has been set to the PRESET position.

6 Set the TC SET button.

Use the TC SET button to set the start number of the time code or user bit.

1 Press the SHIFT button.
The leftmost digit flashes.

2 Press the ADJ button to change the value.
Each time the button is pressed, the number changes. The setting range is given below.
- **When using the time code and user bit in real time**
  00:00:00:00 – 23:59:59:29
- **User bit**
  00 00 00 00 – FF FF FF FF

3 Repeat steps 1 and 2 to change the value.

4 When the setting of the start number is completed, press the START button. In the FREE RUN mode, the time code now starts running.

5 Proceed with the recording or editing.

2. Setting the external time code (TC switch →EXT)

1 Place the VTR in the stop mode.

2 Set the TC/CTL switch to TC.

3 Set the TC INT/EXT switch to EXT. (External time code selected)

4 Setting menu No. 505 (EXT TC SEL) can be set as follows.

LTC: The LTC signal input to the TIME CODE IN connector (XLR) on the rear jack panel is recorded as the time code.
<Note> The LTC signal must be synchronized with the video signal.

VITC: The input video signal's VITC is recorded as the time code.

Reproducing the time code/user bit

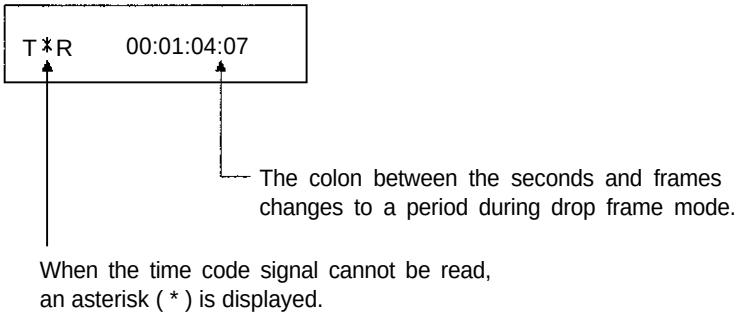
1 Place the unit in the stop mode.

2 Set the TC/CTL button to TC.

3 Set the TC/UB switch to TC or UB.
TC: The time code is displayed.
UB: The user bit is displayed.
- When it is no longer possible to read the time code, it is interpolated using the CTL signal.

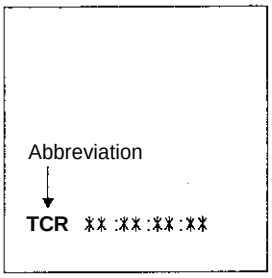
4 Press the PLAY button.
Playback now commences, and the time code appears on the display.
When setting menu No.006 (SUPER) is ON, the time code value is superimposed onto the video signal from the VIDEO OUT 3 connector.

<Notes>
- The colon between the seconds and frames changes to a period when the drop frame time code is read.
- When the time code signal cannot be read, the time code is automatically interpolated by the CTL signal.
  The display appears as shown below.


T*R 00:01:04:07
The colon between the seconds and frames changes to a period during drop frame mode.
When the time code signal cannot be read, an asterisk (*) is displayed.

Superimpose screen

The control signals, time code, etc. are displayed using abbreviations.

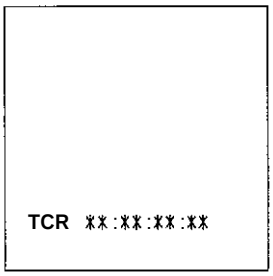


TV monitor

CTL = control signal
TCR = TC time code reading
UBR = TC user bit reading

Characters displayed

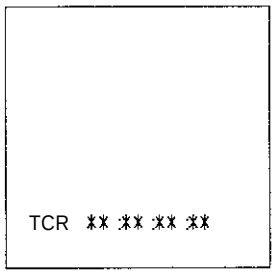
The background of characters superimposed on the display can be changed using menu No.007 (CHARA TYPE).



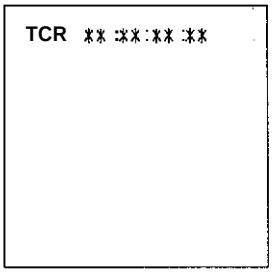
TV monitor

Display position

The position of the characters superimposed on the display can be changed using setting menus No.001 (CHARA H-POS) and No.002 (CHARA V-POS).



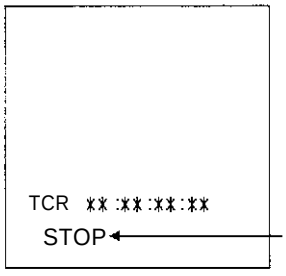
TV monitor



TV monitor

Operation mode

The VTR's operation mode can also be displayed using setting menu No.003 (DISPLAY SEL).

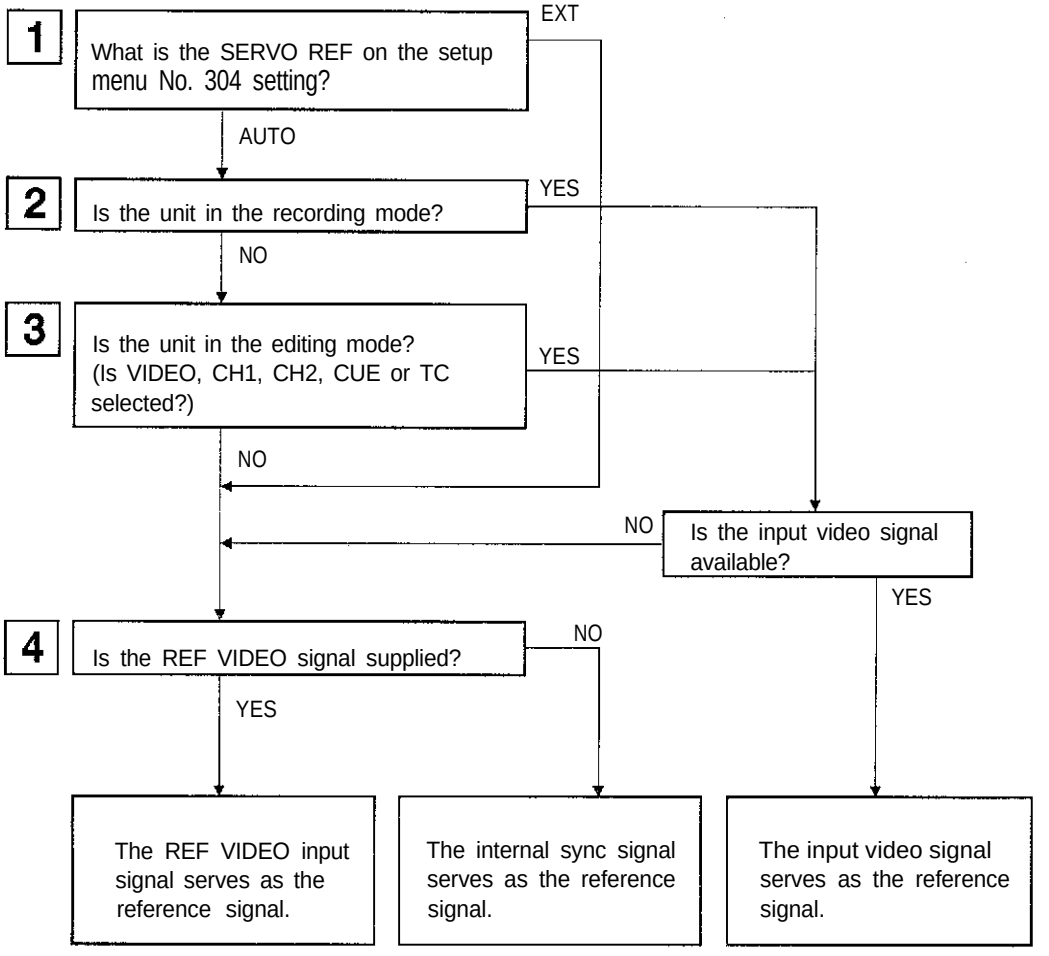


VTR operation mode

TV monitor

Servo reference

This unit automatically selects the input video signal selected by the INPUT switch, the reference video signal supplied from the REF VIDEO input connector or the internal sync signal as the servo reference signal.
When the signal is selected, the unit's mode and servo reference stand in the relationship shown in the flowchart presented below.


1
What is the SERVO REF on the setup menu No. 304 setting?
EXT
AUTO
2
Is the unit in the recording mode?
YES
NO
3
Is the unit in the editing mode? (Is VIDEO, CH1, CH2, CUE or TC selected?)
YES
NO
NO
Is the input video signal available?
YES
4
Is the REF VIDEO signal supplied?
NO
YES
The REF VIDEO input signal serves as the reference signal.
The internal sync signal serves as the reference signal.
The input video signal serves as the reference signal.

Servo reference setting tables

The servo reference signal is switched as shown in the tables below depending on the servo reference setting, deck mode and what input signal is available. When the mode is transferred to editing or recording/playback, the image may be disturbed and the transfer may be delayed if the references during playback and recording do not match.

■ **During playback or special playback**

SERVO REF on the setup menu No. 304 position	Input signal status		Reference signal (servo reference)
	VIDEO IN signal	REF IN signal	
AUTO	○	○	REF IN signal
	○	×	Internal sync signal
	×	○	REF IN signal
	×	×	Internal sync signal
EXT	○	○	REF IN signal
	○	×	Internal sync signal
	×	○	REF IN signal
	×	×	Internal sync signal

■ **During recording or editing**

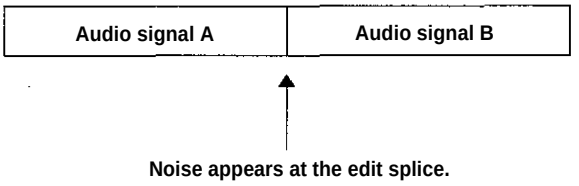
SERVO REF on the setup menu No. 304 position	Input signal status		Reference signal (servo reference)
	VIDEO IN signal	REF IN signal	
AUTO	○	○	VIDEO IN signal
	○	×	VIDEO IN signal
	×	○	REF IN signal
	×	×	Internal sync signal
EXT	○	○	REF IN signal
	○	×	Internal sync signal
	×	○	REF IN signal
	×	×	Internal sync signal

"○" denotes that the signal is supplied: "×" denotes that the signal is not supplied.

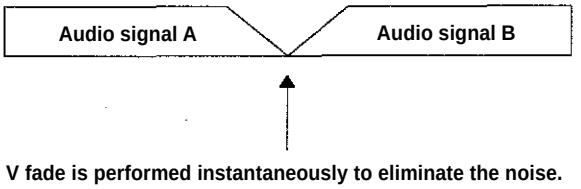
Audio V Fade Function

When editing tapes, the edit point splicing selection (setting menu No. 309 and 310) information is recorded on the tape. This information is then sensed during playback, and V fade or cut processing is automatically performed for these sections. [However, only when the playback fade selection (No. 719) is AUTO.]

When the edit point splicing selection (setting menu No. 309 and 310) is CUT



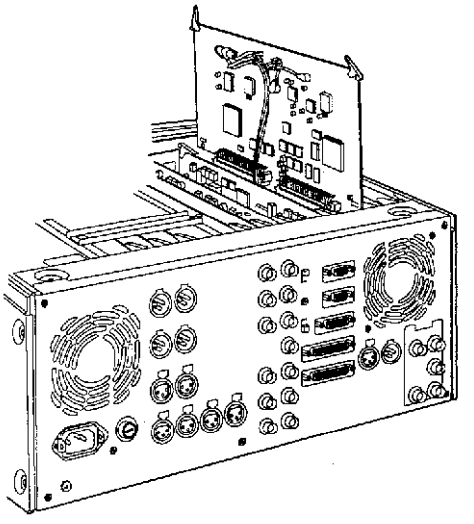
When the edit point splicing selection (setting menu No. 309 and 310) is FADE



<Notes>

- When the playback fade selection (No. 719) is CUT, cut processing is performed for all splices.
- When the playback fade selection (No. 719) is FADE, V fade processing is performed for all splices.

Printed circuit board



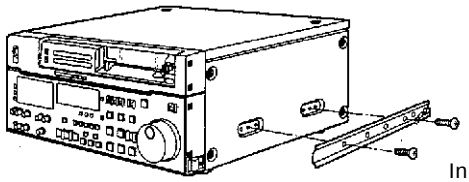
Printed circuit board	Abbr. name	Full name	Function	Factory setting
F8 board ADDA1	SW1	Audio Input Impedance SW	This sets the CH1 audio input impedance. HIGH/600W	HIGH
	SW41	Audio Input Impedance SW	This sets the CH2 audio input impedance. HIGH/600W	HIGH
H2 board CUE	SW101	Cue Input Impedance SW	This sets the CUE input impedance.	HIGH
F4 board	SW940	Component P_B/P_R Output level selector	This sets the component P_B/P_R output level when connecting with the editor. MII : MII level BETA : β -CAM level	BETA

Rack mounting

The unit can be mounted into a 19-inch standard rack if the optional rack-mounting adaptors (AJ-MA34HP) are used. For the installation rails, it is recommended that the rail and bracket for 18" length (model number CC3001-99-0400) of SHASSIS TRAK be used. (The complete slide rail and bracket unit is not available from Panasonic) For further details, consult with your dealer.

1 Remove the screws on the left and right sides of the unit.

2 Use the removed screw to attach the inner members of the slide rails.

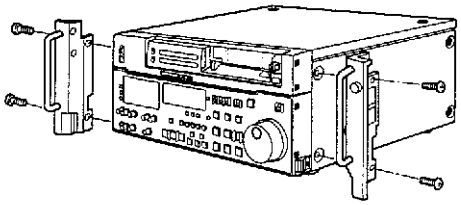


Inner member

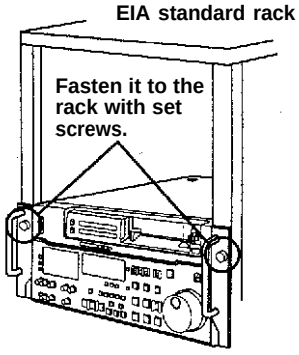
The length of the screws used is subject to restriction. If some of the mounting screws have been lost or misplaced, use screws which are less than 4" long in their place.
Use four screws to secure each inner member.

3 Attach the outer member brackets to the rack.
Check that the height is the same for the left and right brackets.

4 Attach the AJ-MA34HP rack-mounting adaptors with included 4 screws.



5 Remove the 4 rubber legs from the bottom of the unit, and install the unit in the rack.
After the unit has been installed, check that it moves smoothly along the rails.



<Notes>

- Keep the temperature inside the rack to between +41°F (5°C) and +104°F (40°C).
- Bolt the rack securely to the floor so that it will not topple over when the VTR is drawn out.

Connector signals

VIDEO IN

SERIAL IN (DIGITAL)	BNC×2	Active through (Option)
Y, P_B, P_R (ANALOG)	BNC×3	
VIDEO IN	BNC×2	Loop-through, 75 Ω termination switch provided
REF VIDEO IN	BNC×2	Loop-through, 75 Ω termination switch provided

VIDEO OUT

SERIAL OUT (DIGITAL)	BNC×3	(Option)
Y, P_B, P_R (ANALOG)	BNC×3	
VIDEO OUT	BNC×3	

AUDIO IN

SERIAL IN (DIGITAL)	BNC×2	(Option)
AUDIO IN (DIGITAL)	XLR×2	CH1/CH2 AES/EBU format
AUDIO IN (ANALOG)	XLR×2	CH1, CH2
CUE IN	XLR×1	
TIME CODE IN	XLR×1	

Pin No.	Signal
1	GND
2	HOT
3	COLD

AUDIO OUT

SERIAL OUT (DIGITAL)	BNC×3	(Option)
AUDIO OUT (DIGITAL)	XLR×2	CH1/CH2 AES/EBU format
AUDIO OUT (ANALOG)	XLR×2	CH1, CH2
CUE OUT	XLR×1	
TIME CODE OUT	XLR×1	
MONITOR OUT	XLR×2	L (CH1)/R (CH2)
HEADPHONES (front)	M6	

RS-422A REMOTE (9P)

REMOTE IN/OUT

Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	FRAME GROUND	4	RECEIVE COMMON	7	TRANSMIT B
2	TRANSMIT A	5	————	8	RECEIVE A
3	RECEIVE B	6	TRANSMIT COMMON	9	FRAME GROUND

REMOTE OUT

Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	FRAME GROUND	4	TRANSMIT COMMON	7	RECEIVE B
2	RECEIVE A	5	————	8	TRANSMIT A
3	TRANSMIT B	6	RECEIVE COMMON	9	FRAME GROUND

Connector signals

PARALLEL REMOTE (25P)

Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	PLAY COMMAND	10	———	19	STAND BY ON STATUS
2	STOP COMMAND	11	———	20	PREROLL STATUS
3	FF COMMAND	12	≥ 10V, MAX 300mA	21	SERVO LOCK STATUS
4	REW COMMAND	13	PLAY STATUS	22	———
5	REC COMMAND	14	STOP STATUS	23	———
6	EJECT COMMAND	15	FF STATUS	24	———
7	STANDBYON/OFFCOMMAND	16	REW STATUS	25	GND
8	PREROLL COMMAND	17	REC STATUS		
9	IN SET COMMAND	18	EJECT STATUS		

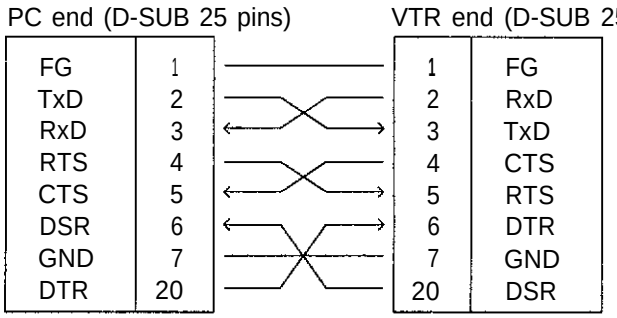
<Notes>

- COMMAND pins: TTL level, active low, ≧ 100ms edge electrical signal.
- STATUS pins: open collector, sink current 6mA

RS-232C REMOTE (25-pin D-SUB crossover cable supported)

Pin No.	Abbreviation	Circuit	Description
1	FRAME GROUND	Protective ground	Frame ground
2	RxD	Received data	Sends data to the PC.
3	TxD	Transmitted data	Receives data from the PC.
4	CTS	Clear to send	Shorted with pin 5.
5	RTS	Request to send	Shorted with pin 4.
6	DTR	Data terminal ready	No processing
7	GND	Signal ground	Signal ground
20	DSR	Data set ready	Positive power output after communication enable status

Example of connections with controller (PC) using a 25-pin D-SUB crossover cable



ENCODER REMOTE (15P)

Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	———	6	SYSTEM H 0	11	RET GND
2	SET UP	7	SYS.SC COARSE (2)	12	———
3	C LEVEL	8	–12V	13	———
4	GND	9	HUE	14	SYS.SC FINE
5	+12V	10	VIDEO LEVEL	15	SYS.SC COARSE (1)

Video head cleaning

This unit has an auto head cleaning function which automatically reduces the dirt on the heads. However, to further increase the units reliability, it is recommended that its video heads be cleaned every day.
Use the cleaning fluid designated by Panasonic.

Condensation

Condensation occurs due to the same principle involved when droplets of water form on a window pane of a heated room. It occurs when the unit or tape is moved between places where the temperature or humidity varies greatly or when, for instance:

- It is moved to a very humid place full of steam or a room immediately after it has been heated up.
- It is suddenly moved from a cold location to a hot or humid location.

When moving the unit to locations such as these, leave it standing for about 10 minutes rather than switching on the power immediately.
If condensation has formed on or in the unit, the AUTO OFF lamp lights and the cassette tape is automatically ejected.
Keep the power supplied and simply wait until the AUTO OFF lamp goes off.

Specifications

GENERAL

Power supply:	AC 120 V±10%, 50 – 60 Hz
Power consumption:	165 W

Operating ambient temperature:	41°F to 104°F (5°C to 40°C)
Operating ambient humidity:	10% to 90% (no condensation)
Weight:	39.6 lbs (18 kg)
Dimensions (WxHxD):	16-3/4×6-15/16×16-3/8 inches
Recording format:	DVCPRO format
Recording tracks:	Digital video Time code Recorded in sub-code area Digital audio 2channels Cue Track 1 track Control (CTL) 1 track
Tape speed:	33.820 mm/sec
Recording time:	General purpose cassette; Max. 123 minutes News-gathering cassette; Max. 63 minutes
Tape:	1/4-inch thin magnetic layer metal tape
FF/REW time:	Less than 3 min (with general purpose cassette) Less than 2 min (with news-gathering cassette)
Editing accuracy:	±0 frame (using time code)
Tape timer accuracy:	±1 frame (using continuous CTL signal)
Servo lock time:	Less than 0.5 sec. (color framing/ standby ON)

VIDEO

(Digital video)

Sampling frequencies:	Y: 13.5 MHz/P_B, P_R: 3.375 MHz
Quantizing:	8 bits
Error correction:	Reed-Solomon product code

(Digital IN/analog component OUT)

Video bandwidth:	Y: 30 Hz to 5.5 MHz (±0.5 dB) 5.75 MHz (–2 dB) P_B, P_R: 30 Hz to 1.3 MHz (±0.5 dB) 1.5 MHz (–5 dB) typ.
S/N ratio:	Better than 60 dB
K factor:	Less than 1%

(Analog component IN/component OUT)

Video bandwidth:	Y: 30 Hz to 5.5 MHz (±1 dB) 5.75 MHz (–3 dB) P_B, P_R: 30 Hz to 1.3 MHz (±1 dB) 1.5 MHz (–6 dB) typ.
S/N ratio:	Better than 55 dB
K factor:	Less than 1%

(Analog composite IN/composite OUT)

Video bandwidth:	Y: 0 to 4.5 MHz (±1 dB)
S/N ratio:	Better than 20 ns
K factor:	Less than 2%

(Video input connector)

Analog component input:	BNC×3 (Y, P_B, P_R) Y: 1.0 Vp-p, 75Ω P_B, P_R: 0.486/0.7 Vp-p switchable, 75Ω (75% color bar, 7.5% setup)
Analog composite input:	BNC×2, loop-through, 75Ω on/off
Reference input:	Analog composite BNC×2, loop-through, 75Ω on/off
Serial digital component input (option):	Complies with SMPTE259M-C standard, BNC×2, active through

(Video output connector)

Analog component output:	BNC×3 (Y, P_B, P_R) Y: 1.0 Vp-p, 75 P_B, P_R: 0.486/0.7 Vp-p switchable, 75Ω (75% color bar, 7.5% setup)
Analog composite output:	BNCx3 Video1/video2/video3 (superimpose on/off)
Serial digital component output (option):	Complies with SMPTE259M-C standard, BNC×3

(Video signals adjustment)

Composite video input signal:	±3 dB
Video output gain:	±3 dB
Video output chroma gain:	±3 dB
Video output hue:	±30°
Video output setup:	±15 IRE
Video output sync phase:	±8μs
Video output SC phase:	±180°
Video output Y/C delay:	±300 ns

AUDIO

(Digital audio)

Sampling frequencies:	48 kHz
Quantizing:	16 bits
Frequency response:	20 Hz to 20 kHz ±1 dB
Dynamic range:	Better than 90 dB (1 kHz, emphasis OFF, "A" weighted)
Distortion:	Less than 0.05% (1 kHz, emphasis OFF, standard level)
Crosstalk:	Less than –80 dB (1 kHz, between 2 channels)
Wow & flutter:	Below measurable limit
Headroom:	20 dB
Emphasis:	T1=50 μs/T2=15 μs (on/off selectable)

(Cue track)

Frequency response:	300 Hz to 6 kHz ±3 dB

(Audio input connector)

Analog input (CH1/CH2):	XLR×2, 600 Ω /high impedance selectable, +4/0/–20 dBu
Digital input (CH1/CH2):	XLR×1, AES/EBU format
Serial digital input (option):	Complies with SMPTE259M-C, 272M standard (BNC)
Cue track input:	XLR×1, 600Ω /high impedance selectable, +4/0/–20/–60 dBu

(Audio output connector)

Analog output (CH1/CH2):	XLR×2, low impedance, +4/0/–20 dBu
Digital output (CH1/CH2):	XLR×1, AES/EBU format
Serial digital output (option):	Complies with SMPTE259M-C, 272M standard (BNC)
Cue track output:	XLR×1, low impedance, +4/0/–20 dBu
Monitor output:	XLR×2, low impedance, +4/0/–20 dBu
Headphones:	Variable level, mini-jack, 8Ω

Other input/output connector

Time code input:	XLR×1, 0.5 to 8 Vp-p
Time code output:	XLR×1, 2.0 Vp-p
RS-422A input/output:	D-sub 9-pin, RS-422A interface
RS-422A output:	D-sub 9-pin, RS-422A interface
RS-232C:	D-sub 25-pin, RS-232C interface
Parallel input/output:	D-sub 25-pin
Encoder remote:	D-sug 15-pin

Weight and dimensions when shown are approximately.
Specifications are subject to change without notice.

Panasonic

Broadcast & Television Systems Company

Division of Matsushita Electric Corporation of America

Executive Office
One Panasonic Way (4B-7), Secaucus, NJ 07094

Service Centers

Eastern:	One Panasonic Way, Panazip (2A-4), Secaucus, NJ 07094 (201)-348-7677 Fax (201)-348-7511
Southern:	1225 Northbrook Parkway, Suite #170, Suwanee, GA 30174 (770)-338-6855 Fax (770)-338-6656
Western:	4001 West Alameda Ave., Suite 100, Burbank, CA 91505 (818)-562-1579 Fax (818)-562-6663

Parts Information & Ordering
9:00 am–5:00 p.m (EST) (800)-334-4881/24 hr. Fax (800)-334-4880

Technical Support
Emergency 24 hr. Parts & Support (800)-222-0741

Training Information
Digital System Products (201)-392-6076

Service Literature
(201)-392-6281

Matsushita Electric of Canada Ltd.
5770 Ambler Dr. Mississauga, Ontario L4W 2T3 (905)-624-5010

Panasonic de Mexico S.A. de C.V.
Av angel Urraza Num. 1209 Col. de Valle 03100 Mexico, D.F. (52) 1 951 2127

Printed in Japan
VQT6509-2

S1295H2066-100 Ⓑ **P**